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A CLASSIFIED LIST OF PROJECTS
CARRIED ON BY
THE AGRICULTURAL EXPERIMENT STATIONS
1921.

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A CLASSIFIED LIST OF PROJECTS
CARRIED ON BY
THE AGRICULTURAL EXPERIMENT STATIONS
1921.

UNITED STATES DEPARTMENT OF AGRICULTURE
STATES RELATIONS SERVICE
OFFICE OF EXPERIMENT STATIONS.

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A CLASSIFIED LIST OF PROJECTS CARRIED ON BY THE AGRICULTURAL
EXPERIMENT STATIONS, 1921.

A revision of the lines of work under investigation by the State experiment stations in 1921 shows a total of 4,770 separate projects, an average of about 95 per station. Of this number, 506, or an average of 10 per station, are conducted under the Adams fund, the support frequently being supplemented from other sources. Of these 4,770 projects 52 are administrative, control or regulatory, leaving 4,718 projects dealing with experimentation and research. To these may be added 147 projects of the insular stations, giving a total of 4,865.

The classified list of these projects, owing to cross references and the fact that in some cases it is necessary to classify them under more than one head, contains a total of 5,489 titles.

The classification brings out the following facts as to the prevailing lines into which the station activity falls. Field crops lead with 1,535 projects, under which corn has 189, potatoes 126, wheat 119, rotations 95, cotton 85, oats 78, and alfalfa 71. Horticulture comes next with 808 projects, the principal headings being apples 102, fruits- general 64, vegetable and truck crops 46, grapes 43, tomatoes 39, peaches 38, and orchard management 36. Plant pathology follows with 419 projects, the largest headings being potato diseases 51, apple diseases 27, tomato diseases 26, and cereal diseases- general 23. Economic entomology has 395 projects, with bees 32, miscellaneous 27, insecticides 26, corn insects 16, and apple insects, codling moth, and flies 15 each. Soils has 284 projects, including soil fertility 55,

119-SRS

soil types 32, soil flora 27, soil nitrogen 21, and soil moisture 20.

The next largest subjects are Veterinary medicine with 174 projects, Rural economics with 172, Rural engineering with 159, Poultry with 152, and Dairy cattle, 151. These are followed by Fertilizers and Swine, each having 141, Botany 124, Dairy products 118, Feeding stuffs and Animal nutrition 117, Genetics 106, Beef cattle 84, Chemistry 82, Forestry and Sheep 68 each, Foods and human nutrition 62, Economic zoology 29, Bacteriology 25, Seeds 23, Weeds 15, Horses and mules 13, Animal husbandry- general 11, Agrotechny 7, and Meteorology 6.

Grouping the projects broadly, agronomy subjects, including field crops, soils and fertilizers, total 1,960 titles, or about one-third of the whole, botany and horticulture 932 projects or about one-sixth, and all animal husbandry, including dairy and dairy products, about one-eighth of the total, leaving about three-eighths of the projects on all other subjects.

E. R. FLINT,

Scientific and Administrative Assistant,

Office of Experiment Stations.

Washington, D. C., June 15, 1922.

CONTENTS.

CHEMISTRY.	Page
Chemical studies, various.....	1
Methods.....	4
Poisonous plants.....	5
(See also Botany and Veterinary medicine.)	
METEOROLOGY.	
Miscellaneous.....	5
BACTERIOLOGY.	
Fermentation.....	5
Food and drinking water bacteria.....	6
Nodule bacteria of legumes.....	6
Pathogenic bacteria.....	6
(See also various bacterial diseases under Veterinary medicine.)...	
Miscellaneous.....	7
BOTANY.	
Anatomical studies.....	7
Fungi.....	7
Plant introduction.....	8
Plant nutrition.....	9
(See also Fertilizers.)	
Poisonous plants.....	12
(See also Chemistry and Veterinary medicine.)	
Miscellaneous.....	13
GENETICS.	
General.--Analysis of inheritance.....	15
Breeding.....	17
Hybridization.....	18
Inheritance of characters.....	19
Variations and mutations.....	21
SOILS.	
General soil studies.....	21
Acidity, soil reaction, liming.....	21
(See also Fertilizers, lime.)	
Alkali.....	22
Composition of soils.....	23
Nitrogen fixation.....	23
Nitrogen transformation.....	24
Organic matter in soils.....	24
Residual effect of crops. (See similar heading under Field crops.)	
Soil erosion and leaching.....	24
Soil fertility.....	25
(See also Field crops,-rotations.)	
Soil flora.....	29
Soil management.....	30

SOILS. (Cont.)	Page
Soil moisture.....	31
Soil nitrogen.....	33
Soil phosphorus.....	34
Soil physics.....	34
Soil potash.....	35
Soil sterilization.....	35
Soil sulphur.....	35
Soil surveys.....	36
Soil types.....	37
Tillage as related to fertility and productivity.....	38
Miscellaneous.....	40
 FERTILIZERS.	
Fertilizer experiments, general.....	40
(See also Field crops- specific crops, and rotations.)	
Borax.....	42
Green manures.....	42
Lime.....	43
(See also Soils,-acidity.)	
Manure.....	44
Nitrogen.....	45
Phosphorus.....	46
Potash.....	48
Sulphur.....	48
(See also Botany,-plant nutrition.)	
Miscellaneous.....	49
 FIELD CROPS.	
General.....	49
Alfalfa.....	50
Barley.....	54
Breeding field crops, general.....	56
Brome grass.....	57
Broom corn.....	57
Buckwheat.....	57
Cane (sugar).....	58
Cereals, general.....	58
(See also specific cereals.)	
Clovers, etc.....	61
(See also Legumes.)	
Clover, sweet.....	62
Corn.....	64
Cost of production. (See Rural economics, -cost of production.)	
Cotton.....	73
Cowpeas.....	78
Dry land crops.....	78
Emmer.....	80
Fiber plants.....	80
(See also Flax, Hemp, and Sisal.)	
Field beans.....	80
Field peas.....	81
Flax.....	81
Forage crops.....	82

FIELD CROPS. (Cont.)	Page.
Grasses, general.....	84
Hay.....	86
Hemp.....	87
Horse beans.....	87
Irrigation crops.....	87
Johnson grass.....	87
Kafir.....	87
Kudzu.....	88
Legumes.....	88
(See also specific legumes.).....	
Legumes, inoculation.....	89
(See also Botany, -nitrogen assimilation.)	
Milletts.....	89
Milo.....	90
Mung beans.....	90
Oats.....	90
Pasture.....	94
Peanuts.....	95
Popcorn.....	96
Potatoes.....	96
Range studies.....	103
(See also Animal husbandry - Cattle, grazing and range experiments.)	
Rape.....	103
Residual effect of crops.....	103
(See also Rotations.)	
Rice.....	104
Rotations.....	105
Rutabagas.....	111
Rye.....	111
Serradella.....	112
Silage crops.....	112
(See also Feeding stuffs and animal nutrition, -silage.)	
Sisal.....	114
Sorghums.....	114
Soy beans.....	115
Sudan grass.....	117
Sugar beets.....	118
Sunflowers.....	119
Sweet clover. (See Clover, sweet.)	
Sweet potatoes.....	120
Timothy.....	121
Tobacco.....	121
Variety tests, general.....	124
Velvet beans.....	124
Vetch.....	124
Wheat.....	125
(See also Foods and human nutrition, -milling and baking.)	
Miscellaneous.....	131

HORTICULTURE.

Page

Almonds.....	132
Apples.....	132
Apricots.....	137
Asparagus.....	137
Beans.....	138
Beets.....	139
Blackberries.....	139
Blueberries.....	139
Broccoli.....	140
Cabbage.....	140
Cantaloups.....	141
Carrots.....	141
Celery.....	141
Cherries.....	141
Citrus.....	142
(See also Rural economics, -cost of production.)	
Coffee.....	143
Collards.....	143
Cranberries.....	143
Cucumbers.....	144
Currants.....	144
Dewberries.....	144
Eggplants.....	144
Figs.....	145
Filberts.....	145
Floriculture.....	145
Fruit bud studies.....	146
Fruits, general.....	147
(See also Rural economics, -cost of production.)	
Fruits, tropical and subtropical.....	150
(See also Citrus, Coffee, Figs.)	
Gooseberries.....	151
Grapes.....	151
Greenhouse soils, management and treatment.....	154
Juneberries.....	154
Landscape gardening.....	154
Lettuce.....	155
Litchis.....	155
Loganberries.....	155
Mulberries.....	155
Mushrooms.....	155
Nuts, general.....	155
Off-year production.....	155
Olives.....	156
Onions.....	156
Orchard management, fertilizers, culture, miscellaneous.....	156
Ornamentals and hedge plants.....	158
Parsnips.....	159
Peaches.....	159
Pears.....	161
Peas.....	162
Pecans.....	162
Persimmons.....	163
Pistachios.....	163
Plums.....	164

HORTICULTURE. (Cont.)

Pollination studies.....	Page 161
(See also specific fruits.)	
Prunes.....	161
Pruning.....	164
(See also specific fruits.)	
Quinces.....	166
Raspberries.....	166
Rhubarb.....	166
Small fruits, general.....	166
Spinach.....	167
Squash.....	168
Spraying, dusting, and fumigating, general.....	168
(See also Chemistry,-chemical studies, various; Horticulture,-specific fruits; Diseases of plants,-fungicides and specific plants; and Entomology,-insecticides.)	
Stock and scion investigations.....	169
(See also specific fruits.)	
Strawberries.....	170
Sweet corn.....	171
Tomatoes.....	172
Tung oil nut trees.....	174
Vegetables and truck crops, general.....	174
Walnuts.....	177
Watermelons.....	177
Winter injury.....	177
(See also specific fruits.)	
Miscellaneous.....	178

SEEDS AND SEED TESTING.

Germination studies.....	179
Production and distribution.....	179
Miscellaneous.....	179

WEEDS.

Eradication and control.....	180
Miscellaneous.....	180

FORESTRY.

Basket willows.....	181
Forest management.....	181
Forest mensuration.....	181
Forest nursery studies.....	181
Forest products.....	182
Reforestation.....	182
Tree planting experimental.....	183
Windbreaks.....	183
Wood, studies of.....	183
Miscellaneous.....	183

DISEASES OF PLANTS.

Alfalfa diseases.....	185
Apple diseases.....	185

DISEASES OF PLANTS.

Page

Apricot diseases.....	186
Avocado diseases.....	187
Barley diseases.....	187
(See also Cereal diseases, general.)	
Bean diseases.....	187
Blackberry diseases.....	187
Cabbage diseases.....	188
Cantaloup diseases.....	188
Carrot diseases.....	188
Cauliflower diseases.....	188
Celery diseases.....	188
Cereal diseases, general.....	189
(See also specific grain diseases.)	
Cherry diseases.....	190
Citrus diseases.....	190
Clover diseases.....	191
Coffee diseases.....	191
Corn diseases.....	191
Cotton diseases.....	192
Cranberry diseases.....	193
Crown gall.....	193
Cucumber diseases.....	193
Date diseases.....	193
Disease resistance.....	193
(See also Genetics,- inheritance of disease resistance.)	
Eggplant diseases.....	194
Flax diseases.....	194
Flower diseases.....	194
Forage crop diseases.....	195
Forest and shade tree diseases.....	195
Fruit diseases.....	195
Fruit tree diseases.....	196
Fungicides.....	196
(See also Insecticides under Entomology.)	
Fusarial diseases.....	196
Grape diseases.....	196
Grass diseases.....	196
Horse radish diseases.....	197
Lettuce diseases.....	197
Melon diseases.....	197
Mosaic diseases.....	197
(See also specific crops.)	
Muskmelon diseases.....	198
Oat diseases.....	198
(See also Cereal diseases, general.)	
Onion diseases.....	198
Pea diseases.....	198
Peach diseases.....	199
Pear diseases.....	199
Pecan diseases.....	199
Pepper diseases.....	200

DISEASES OF PLANTS. (Cont.)		Page
Pineapple diseases.....		200
Plant disease survey.....		200
Plum diseases.....		200
Potato diseases, Irish.....		201
Raspberry diseases.....		203
Rhubarb diseases.....		203
Rice diseases.....		204
Root knot.....		204
Root rot diseases.....		204
Rye diseases.....		204
(See also Cereal diseases, general.)		
Seeds, as disease carriers, treatment, etc.....		204
(See also diseases of specific crops.)		
Small fruits, diseases of.....		204
Sorghum diseases.....		204
(See also Cereal diseases, general.)		
Soy bean diseases.....		205
Spinach diseases.....		205
Strawberry diseases.....		205
Sugar beet diseases.....		205
Sugar cane diseases.....		205
Sunflower diseases.....		206
Sweet clover diseases.....		206
Sweet potato diseases.....		206
Tobacco diseases.....		206
Tomato diseases.....		207
Vegetable diseases, general.....		208
Walnut diseases.....		209
Watermelon diseases.....		209
Wheat diseases.....		209
(See also Cereal diseases, general.)		
Miscellaneous.....		210
ECONOMIC ZOOLOGY.		
Birds.....		212
Crawfish.....		212
Fish.....		212
Nematodes.....		212
(See Plant diseases, -Root knot.)		
Oysters.....		212
Rodents and other mammals.....		213
Miscellaneous.....		213
ECONOMIC ENTOMOLOGY.		
Alfalfa insects.....		214
(See also Field crop and specific insects.)		
Ants.....		214
Aphids.....		214
(See also insects of specific plants.)		
Apple insects.....		214
(See also specific insects.)		
Army worms.....		215

ECONOMIC ENTOMOLOGY. (Cont.)

	Page.
Bean insects.....	216
(See also Truck crop and specific insects.)	
Bees.....	216
Beet insects.....	217
Beetles.....	218
(See also Weevils and specific crops.)	
Brown-tail Moth.....	218
Cabbage insects.....	218
(See also Truck crop and specific insects.)	
Cane insects.....	219
(See also Field crop and specific insects.)	
Cherry insects.....	219
Chinch bugs.....	219
Cicada.....	219
Citrus insects.....	219
(See also specific insects.)	
Clover insects.....	219
(See also Field crop and specific insects.)	
Codling moth.....	220
Coffee insects.....	220
Corn insects.....	221
(See also Field crop and specific insects.)	
Cotton insects.....	222
(See also Field crop and specific insects.)	
Cowpea insects.....	222
(See also Field crop and specific insects.)	
Cranberry insects.....	222
(See also Fruit and specific insects.)	
Crickets.....	222
Cucumber insects.....	223
Cut worms.....	223
False chinch bug.....	223
Field crop insects.....	223
Fleas.....	224
Flies.....	224
(See also Parasites, external.)	
Forest insects.....	224
Fruit insects.....	225
Grape insects.....	225
(See also Fruit and specific insects.)	
Grass insects.....	225
Grasshoppers.....	226
Greenhouse insects.....	226
Gypsy moth.....	226
Hemiptera.....	226
(See also Aphids, Scale insects, Leaf hoppers, and insects of specific crops.)	
Hessian fly.....	227
Household insects.....	227
(See also Flies.)	
Hymenoptera.....	227

ECONOMIC ENTOMOLOGY. (Cont.)	Page
Insecticides and fumigants.....	228
(See also Horticulture, -Spraying, dusting, and fumigating.)	
Leaf hoppers.....	229
Leaf miners.....	229
(See also insects of specific plants.)	
Leaf rollers.....	229
Lepidoptera.....	229
(See also insects of specific crops.)	
Melon insects.....	230
(See also Truck crop and specific insects.)	
Midges.....	230
Mites.....	230
(See also insects of specific plants.)	
Mosquitoes.....	230
Natural control.....	230
(See also Phenological insect investigations.)....	
Nursery insects.....	231
Odonata.....	231
Onion insects.....	231
(See also Truck crop and specific insects.)	
Parasites, external.....	231
(See also Flies, Mosquitoes, and Ticks.)	
Pea insects.....	232
Peach insects.....	232
(See also Fruit and specific insects.)	
Peanut insects.....	232
(See also Field crop and specific insects.)	
Pear insects.....	232
(See also Fruit and specific insects.)	
Pecan insects.....	233
(See also specific insects.)	
Phenological insect investigations.....	233
Plum insects.....	233
(See also Fruit and specific insects.)	
Potato insects.....	233
(See also Field crop and specific insects.)	
Prune insects.....	233
(See also Fruit and specific insects.)	
Raspberry insects.....	234
Red spider.....	234
San José scale.....	234
Scale insects.....	234
(See also San José scale.)	
Shade tree insects.....	234
Soy bean insects.....	235
Squash insects.....	235
(See also Truck crop and specific insects.)	
Stored products insects.....	235
Strawberry insects.....	235
(See also Fruit and specific insects.)	
Sugar beet insects.....	235
(See also Field crop and specific insects.)	

ECONOMIC ENTOMOLOGY, (Cont.)	Page.
Sweet potato insects.....	236
(See also Field crop and specific insects.)	
Termites.....	236
Thrips.....	236
Ticks.....	236
Tobacco insects.....	236
(See also Field crop and specific insects.)	
Truck crop and garden insects.....	236
Turnip insects.....	237
Velvet bean insects.....	237
(See also Field crop and specific insects.)	
Walnut insects.....	237
Weevils.....	237
(See also insects of specific crops.)	
Wheat insects.....	237
(See also Field crop and specific insects.)	
Wire worms.....	238
Miscellaneous.....	238
FOODS AND HUMAN NUTRITION.	
Food preservation.....	239
(See also Storage studies.)	
Human nutrition.....	241
Milling and baking.....	241
Storage studies.....	242
Miscellaneous.....	243
FEEDING STUFFS AND ANIMAL NUTRITION.	
Feeding stuffs, composition, and nutritive value.....	243
Animal nutrition.....	245
(See also Vitamin studies.)	
Protein requirements and metabolism.....	246
Vitamin studies.....	247
(See also Animal nutrition.)	
Mineral metabolism.....	248
Silage and silage feeding experiments.....	249
ANIMAL HUSBANDRY, -GENERAL.	
Miscellaneous.....	250
ANIMAL HUSBANDRY, -BEEF CATTLE.	
General.....	251
Breeding.....	252
Cost studies, production, finishing, maintenance. (See Rural economics, - cost of production.)	
Feeding experiments, general.....	252
(See also Feeding stuffs and Animal nutrition.)	
Grazing and range experiments.....	256

ANIMAL HUSBANDRY, -SHEEP AND GOATS.		Page.
General.....		256
Breeds and breeding.....		257
Ewes, feeding and maintenance.....		257
Lambs, feeding and fattening.....		258
Wool.....		259
Goats.....		260
ANIMAL HUSBANDRY, -SWINE.		
General.....		260
Breeds and types, breeding.....		260
Brood sows, maintenance and management.....		261
Cost of production. (See Rural economics, -cost of production.)		
Feeding, general.....		262
(See also Animal nutrition.)		
Forage crops for hogs: Hogging off.....		263
Garbage for hogs.....		265
Mineral supplements for hogs.....		265
Protein supplements for hogs.....		265
(For Peanuts, see Soft pork.)		
Self-feeders.....		268
Soft pork, in connection with feeding peanuts, etc.....		268
ANIMAL HUSBANDRY, - HORSES AND MULES.		
Breeding.....		269
Cost of production. (See Rural economics, - cost of production.)		
Feeding.....		269
ANIMAL HUSBANDRY, -POULTRY.		
Breeding.....		270
Chicks, brooding and feeding.....		272
Cost of production. (See Rural economics, -cost of production.)		
Egg laying contests, exhibitions, and routine records.....		272
Egg laying, - physiology and correlations.....		273
(See also Genetics.)		
Feeding and fattening, general.....		274
(See also Animal nutrition.)		
Illumination of hen houses.....		275
Incubation, fertility, and hatching of eggs.....		276
Management and housing.....		277
Marketing and distribution.....		277
Protein supplements for poultry.....		277
Miscellaneous.....		279
DAIRY CATTLE.		
General.....		280
Breeding.....		280
(See also Genetics.)		
Calves and heifers.....		282
Cost of production. (See Rural economics, - cost of production.)		
Feeding experiments; general.....		283
(See also Feeding stuffs and animal nutrition, -silage and silage feeding experiments.)		

DAIRY CATTLE. (Cont.)	Page.
Protein supplements for dairy cattle.....	285
Herd management.....	286
Milking machines.....	286
Milk secretion and production.....	287
Official testing and inspection.....	288
DAIRY PRODUCTS.	
Bacteriology of dairy products.....	288
Butter and buttermaking.....	290
Cheese and cheesemaking.....	291
Ice cream studies.....	292
Milk, -composition, handling, and marketing.....	293
Miscellaneous.....	295
AGROTECHNY.	
Cane sugar.....	295
Maple sugar and sirup.....	296
VETERINARY MEDICINE.	
Anthrax.....	296
Cattle diseases.....	296
(See also specific diseases.)	
Contagious abortion.....	297
(See also Serum production.)	
Hairlessness and goitre.....	298
Hemorrhagic septicemia.....	298
Hog cholera.....	298
(See also Serum production.)	
Horse diseases.....	299
(See also specific diseases.)	
Necrobacillosis.....	300
Parasites.....	300
(See also Sheep and Poultry diseases and Entomology, -parasites, external.)	
Poisoning and poisonous plants.....	301
(See also Botany and Chemistry.)	
Poultry diseases.....	301
(See also specific diseases.)	
Serum production, vaccines, bacterins, and antitoxins.....	303
Sheep and goat diseases.....	304
(See also specific diseases.)	
Swine diseases.....	304
(See also specific diseases.)	
Tuberculosis.....	305
Miscellaneous.....	306
RURAL ENGINEERING.	
Clearing land.....	306
Drainage.....	307

RURAL ENGINEERING. (Cont.)		Page.
Farm buildings and equipment.....		308
Farm machinery.....		309
Farm water supply, sewage disposal, and sanitation.....		311
Irrigation.....		312
Materials of construction.....		314
Miscellaneous.....		315
RURAL ECONOMICS.		
Cost of production and accounting.....		316
Farm labor.....		318
Farm organization and management.....		318
Farmers' cooperative organizations.....		320
Land settlement.....		321
Land tenure.....		321
Land values.....		322
Marketing.....		322
Rural credit.....		323
Rural sociology.....		323
Miscellaneous.....		325

CHEMISTRY.

Chemical studies, various.

Variations in analytical weighings due to differences in temperature.
N.Y. Cornell.

Gasometric analysis of carbonates. Mich.

The type of combination in which the nitrogen, which proteins yield as ammonia when boiled with acids, is present in the protein molecule.
Conn. State.

Chemical investigations of acid soils.--To determine why some acid soils of Oregon respond to lime and others do not. Oreg.

Analysis of the agricultural soils and limestone of the State. Ky.

Chemical study of Gallatin Valley soils. Mont.

The chemical analysis of soils from the experiment farm at Sheridan.--To find the per cent of all the soil constituents at three depths (surface, intermediate subsoil, and deep subsoil) at five year intervals. (In cooperation with the Bureau of Plant Industry, U.S.D.A.). Wyo.

Chemical and bacteriological studies of peat. N.J.

Chemical study of Gallatin Valley ground water. Mont.

The chemical analysis of forage crops and feeding stuffs. Wyo.

Chemical composition of forage crops as affected by various factors. Iowa.

Chemical analyses of silage crops. Minn.

Influence of climatic factors on the chemical composition of plants. Wis.

The composition and properties of silage prepared from the grain sorghum.
Okla.

Chemical study of the grain sorghums. Okla.

Chemical investigations of corn silage. Iowa.

Chemical investigations of sweet clover. Iowa.

Chemical contents of forage crops, particularly hydrocyanic acid in Sudan grass. Kans.

A chemical study of the velvet bean. Ala.

Studies of the availability of organic nitrogenous substances. Mich.

The proteins of green leaves and their food values. Conn. State.

Chemical studies, various. (Cont.)

- The effect of very dilute acids and alkalis on proteins, with special reference to developing methods by which hitherto inaccessible proteins may be isolated from vegetable products. Conn. State.
- The isolation and study of pure proteins from forage crops. (Work on alfalfa seed, alfalfa hay, and clover hay). Oreg.
- Composition, constitution, and properties of proteid bodies, especially those of ripe seed and their relative efficiency in nutrition. Conn. State.
- The constitution, metabolism, and physiological effect of certain phosphorus bodies found in feeding stuffs. N. Y. State.
- A study of the proteins of peanuts, cottonseed, hemp, kafir, and alfalfa, Okla.
- A study of the proteins of the pecan.--To find the per cents of proteins extracted by the solvents commonly used. Okla.
- The determination and significance of the amino acid resulting from the hydrolysis of the proteins contained in seeds, grains, grasses, feeds, and foods. Ky.
- Chemical factors concerned in the formation of pigments in certain varieties of corn. Nebr.
- Changes taking place in corn and corn meal when stored under different conditions. Ky.
- Chemical changes which take place in cottonseed during growth and factors affecting same. Okla.
- Analysis of corn for selection of high and low protein strains. Minn.
- A study of the total and water-soluble calcium and magnesium content of flours from strong to weak wheats, and to determine whether there is any relation between strength of flour and calcium and magnesium content. N.Dak.
- Tests (chemical) of wheat. Minn.
- Determination of the effect of varying amounts of potash on the composition of oranges. Fla.
- Nature and inheritance of chemical constituents of certain vegetable oils. Wis.
- Chemistry and metabolism of plants by varying degrees of vegetation and reproduction. N.H.

Chemical studies, various. (Cont.)

Microscopical and chemical study of proximate constituents of plants, their metabolism and translocation, with special reference to influence of plant food ingredients. R.I.

The chemical composition of green leaves. Conn. State.

The biochemistry of disease resistance in plants. Minn.

Chemical studies of pollen. Minn.

Analysis and composition of corn pollen. N.Y. State.

A study of the protein of maple seed and the protein and phosphorus compounds of pollen. N.Y. State.

A study of the chemical composition of fruits during development under varying conditions of treatment. Del.

Investigations of the chemical composition of apples, in relation to apple breeding problems. Iowa.

A chemical study of the process of ripening in the prune, with special relation to improvement of methods of drying. Wash.

Chemical investigation of spray materials. Oreg.

Study of the chemistry of arsenical insecticides. Mass.

Nature and properties of the pectins. N.Y. Cornell.

Study of the factors that induce jellying. Del.

The chemistry of nectar secretion. Iowa.

Gelatin tests of practical value. Okla.

Chemical studies on animal nutrition and deficiency diseases. Minn.

Bacteriological and chemical studies of abnormal milks. Iowa.

Study of the chemistry of butter fat and the effect of food in modifying its chemical and physical character. Mass.

The properties of casein. N.Y. State.

Protein investigations. Humin formation with special reference to the structure of the compound resulting from the interaction of tryptophane and an aldehyde. Minn.

Chemical studies, various. (Cont.)

Horse fat investigations.--To determine the chemical and physical constants and to investigate the constituents of horse fat. N.Dak.

The biochemistry of carotinoid pigments in animals. Minn.

Vinegar investigations. Iowa.

Vinegar studies. Colo.

The reaction of feces in man and animals. Mich.

The effect of pressure on enzymes. W.Va.

Methods.

Investigation of proposed official methods of analysis. Minn.

The preparation and use of neutral ammonium citrate solution. Mich.

The application to food problems of apparatus which has heretofore been used for the most part in theoretical chemical investigations, such as apparatus for H-ion determinations, osmotic pressure, etc. N.Y. Cornell.

The development of the calcium acetate method of determining so-called soil acidity. The development of a simple means of determining soil organic matter content; the nature of so-called soil acidity in Vermont soils. Vt.

A study of the determination of moisture in soils and agricultural materials and the nature of the decomposition products given off. S.C.

A new method for the analysis of dry lime sulphur mixtures. Mass.

Methods of determining boron when applied to mixed fertilizers and working out modifications that would be adapted to these materials. Me.

A study of methods of determining caffeine. Conn. State.

Detection of butter fat adulterants.--To develop methods for detecting and approximate quantitative estimation of butter fat adulterants. Ind.

A comparison of the Majomier method and the Babcock method for determining the percentage of fat in different dairy products. N.Y. Cornell.

A titration method of determining chlorin in milk. Iowa.

Poisonous plants. (See also Botany and Veterinary medicine.)

Chemical study of the toxic principles of Aconitum columbianum. Wyo.

Studies of poisonous plants.--Study of Astragalus bisulcatus. Wyo.

Chemical study of the toxic principles of Delphinium menziesii. Wyo.

Preliminary examination of Glaux maritima. Wyo.

Loco eradication and loco poisoning. Mont.

Chemical study of the toxic principles of the seeds and fruits of
Lupinus argenteus. Wyo.

Preliminary examination of Triglochin maritima. Wyo.

The toxicology of cottonseed and their products.--The determination of
the cause of the injury frequently resulting when cottonseed meal is
fed to swine and the elimination of this cause of injury. N.C.

METEOROLOGY.

Miscellaneous.

Climatology. Ariz.

Meteorology. Colo.

Weather observations with special attention to frost protection. (Cran-
berry Station) Mass.

Meteorological data, including evaporation, precipitation, wind velocity,
daily temperatures (maximum and minimum) and humidity. (Rice Experiment
Station) La.

Studies in evaporation. N.Y. Cornell.

The relation of the climate of New York to the agricultural industries
of the State. N.Y. Cornell.

BACTERIOLOGY.

(See also Soil flora, Field crops - legumes, and Dairy bacteriology.)

Fermentation.

Acetic acid bacteria. Iowa.

Studies of vinegar fermentation. Mich.

Fermentation. (Cont.)

Fermentation of certain carbohydrates with the isolation and utilization of the fermentation products. Iowa.

Studies of pentose-fermenting bacteria. Wis.

Fermentations in production of sauerkraut. Iowa.

Microorganisms in the fermentation of silage. Iowa.

Food and Drinking Water Bacteria.

Studies of the relation of microbes to food decomposition and to food poisoning. Mich.

A rapid and simple method of differentiation of types A and B botulinus toxins in food. Ill.

Bacteriological investigations on drinking water supplies.--To improve the water supplies of rural districts. Mich.

Nodule bacteria of legumes.

Studies of nodule-forming bacteria. Mich.

Studies on the longevity of B. radicicola in the soil. After the crop is removed how long do the bacteria live in the soil and retain the ability to inoculate the next crops? Mo.

Nodule organism of alfalfa and its relation to those of sweet and red clover. Ky.

Pathogenic bacteria. (See also various bacterial diseases under Veterinary.)

To study factors that may control the metabolism of bovine tubercle bacillus. Wash.

Studies on Bacillus botulinus. Mich., Wis.

The distribution of B. botulinus. Ill.

Resistance of the B. botulinus spore. Ill.

The presence of B. botulinus type A in the excretions of poliomyelitis patients. Ill.

Bacteriology, miscellaneous.

The isolation and study of nitrifying bacteria. Idaho.

Chemical and bacteriological studies of peat. N.J.

Protein synthesis by microorganisms.--A study of the possibilities of utilizing protein synthesis by microorganisms, in converting common waste products of Kansas crops into valuable feed materials. Kans.

Factors which accelerate or retard the action of microorganisms, particularly as affecting the accumulation of plant foods and of disease-infected or of disease-producing residues in the soils. N.Dak.

Relation of parasitic fungi and bacteria to their host plants. Va.

A study of the bacterial flora of the intestinal tract of the honey bee. Iowa.

Bacteriological and chemical studies of abnormal milks. Iowa.

BOTANY.

Anatomical studies.

Anatomy and morphology of angiosperm flowers. N.Y. Cornell.

A study of Angiosperm meristem. N.Y. Cornell.

Further work on the histology of the phloem in certain woody angiosperms. N.Y. Cornell.

Anatomy of flowers of the Ranales. N.Y. Cornell.

Anatomy of the flowers of the Salicaceae. N.Y. Cornell.

A cytological study of the cells of various races of maize, with special reference to the origin and behavior of chloroplasts. N.Y. Cornell.

Fungi.

Morphological and taxonomic studies of Pyrenomycetes. At present chiefly concerned with the genus Nitschkia and its relatives. N.Y. Cornell.

Pyrenomycetes of Porto Rico. N.Y. Cornell.

Studies on Botrytis and Sclerotinia diseases of plants, including Botrytis diseases of peony, Botrytis blight of golden seal; Sclerotinia minor stem rot. N.Y. Cornell.

Fungi. (Cont.)

General taxonomic study of forms in the genera Botrytis and Sclerotinia, especially with respect to the interrelationship of these forms, host ranges, and biological strains. N.Y. Cornell.

Sexuality in the genera Botrytis and Sclerotinia, and the occurrence of dioecious fruit. N.Y. Cornell.

Life histories and classification of the fungus genus Mycosphaerella. Md.

Life history of Sclerotinia cineria.--With especial attention to the blossom blight form and to the relation of the cankers to infections. N.J.

A complete study of Sclerotinia libertiana (Fuckel) as a plant parasite. N.Y. Cornell.

Investigations into the life history and parasitism of Sclerotium rolfsii. Ga.

The relation of microspores "Spermatia" to life history and propagation of certain ascomycetes. Ga.

Relation of parasitic fungi and bacteria to their host plants. Va.

Biologic specialization of parasitic fungi in relation to disease resistance in plants. Susceptibility of several varieties of beans to the different strains of anthracnose and rust of the bean. Colo.

Soil fungi. N.J.

Variation of fungi as a result of environment. Me.

Fungi of Arkansas. Ark.

The effect of plant extracts on fungi and higher plants. N.Y. Cornell.

The effect of digestive fluids on spore viability. The determination of the question whether or not spore of fungi (smuts, etc.) will survive passage through the alimentary canal. Vt.

Study of plant pathogenes from the point of view of their biological characteristics. The determination of biological relations in the fungi imperfecti. Mich.

Plant introduction.

Plant introduction. Tex.

Foreign plant introductions. Penn.

Plant introduction. (Cont.)

Seed and plant distribution. To encourage more general and more diversified plantings, provide good seeds and plants which can not be obtained elsewhere on the Island. Guam.

Test of new and imported species of plants.--Acclimatization tests, including teff grass, kikuyu grass, and Sudan grass. Also teosinte, pearl millet, etc. (In cooperation with the Office of Foreign Seed and Plant Introductions, U.S.D.A.). Ga.

Seed and plant accession. Calif.

Tests with imported grasses and forage plants. S.C.

Introduction of exotic trees. The securing of trees that will succeed under adverse soil and moisture conditions, in general, on sand dunes. Mich.

Plant nutrition. (See also Fertilizers.)

Plant metabolism and growth. Minn.

A study of the metabolism of roots.--To determine whether any materials in addition to the essential mineral salts, water, free oxygen, and carbonhydrates are required for the growth and development of the root. Mo.

Effect of various factors, especially nutrients and water supply, on root growth, both absolute growth and growth relative to that of tops. N.Y. Cornell.

Effect of water supply on root growth, both absolute growth and growth relative to tops. N.Y. Cornell.

The controlling influence of carbon dioxid on metabolism in storage organs [with potatoes]. Md.

Chemistry and metabolism of plants by varying degrees of vegetation and reproduction. N.H.

Microscopical and chemical study of proximate constituents of plants, their metabolism, and translocation, with special reference to influence of plant food ingredients. R.I.

Metabolism studies with sweet corn. Md.

Function of different sugars in plant metabolism. N.Y. Cornell.

Nutrient solutions. Ala.

Plant nutrition. (Cont.)

To determine the best salt preparations for wheat or cowpeas in water cultures and sand cultures. (In cooperation with the National Research Council). Mich.

Study of the relation of the concentration of nutrient solutions to the growth of the barley plant in sand and water cultures. The relation of solution to absorption and forms of combinations of important elements. Calif.

Absorption of solutes by plants with special reference to balanced solutions. To determine a rational system for providing the proper salt requirement for agricultural plants from the point of view of proper ratios or balanced salt action. Mich.

Study by means of water and pot culture, of the physiological effect and relationship of nutrient elements upon plant growth. R.I.

Investigation of the food requirements of plants growing in sand or in soil cultures. Md.

The relation of soil moisture and of the moisture content of sand cultures to balanced fertilizer rations and to the physiological value of nutrient mixtures for plants. N.J.

Tissues concerned in the upward transfer of foods and nutrients in plants, and the mechanism and factors affecting this movement. N.Y. Cornell.

The translocation of the mineral matter in plants. Ky.

The relation of H-ion concentration to the growth of plants. Mo.

Relation of noncolloidal solid substrata to certain properties of nutrient media for the growth of plants. N.J.

The salt requirements of representative agricultural plants. N.J.

The possibility of the utilization of inorganic nitrogen (NO_3 and NH_4) by green plants (algae) in the absence of light. N.Y. Cornell.

Study of ammonium sulphate in relation to plant growth. N.J.

Utilization of plant food nitrogen in the presence of phosphoric acid and potash. Including utilization of nitrogen in mixture of nitrogenous materials and study of factors affecting the utilization of nitrogen and ammonium sulphate. N.J.

Functions of nitrogen, potash, and phosphoric acid in the production of the peach. Del.

Plant nutrition (Cont.)

Study of plants in relation to their comparative requirements for lime and magnesia and physiological or other reasons for variation therein. R.I.

To determine the effect of phosphorus in different forms on the growth of plants and the effect of sulphur in combination with calcium (gypsum calcium sulphate) and as pure sulphur on the growth of plants and its effect on the availability of phosphorus in different forms. S.Dak.

Function of sulphur as a plant food. Wash.

Influence of form and amount of sulphur on growth and development of seed and of sulphur-loving plants. Wis.

The relation of sulphur and sulphur compounds to cell structure. Md.

Magnesium and sulphur nutrition of plants. To determine the influence of sulphur in soil on the production of protein in highly nitrogenous field crops and the effect of magnesium in the soil on fat production in oil-bearing plants, such as peanuts, soy beans, and cotton. Ark.

Studies on the nutrition of plants as affected by nitrogen and sulphur and by salts. Calif.

Studies of certain fertilizers in relation to production- particularly a study of phosphorus and sulphur in relation to flower production. To determine the amount that should be applied to the soil and the conditions affecting its use by growing plant. Ill.

Is manganese essential to the normal growth of higher plants? N.Y. Cornell.

Occurrence, distribution, and effect of manganese in plants. KY.

Influence of silicates on plants. Ohio.

Availability and efficiency of various soluble and insoluble iron compounds in relation to plant production. N.J.

Relation of chlorin to plant growth. Wis.

Water requirements of crops as related to plant characters and environmental factors. Nebr.

Investigation on the duty of water in plant growth. Moisture requirements of certain common crops, seasonal effect on the moisture requirements, and effect of amount of water present in soil. Idaho.

The possibility of the utilization of soil organic matter. N.Y. Cornell.

Study of fundamental processes relative to the storage of sugars and other carbohydrates in the wood and inner bark of the maple, oak, elm, birch, apple, beech, ash, chestnut, etc. Vt.

Plant nutrition. (Cont.)

Physiological effects of available plant food upon length of the crop growing season. A systematic and thorough study of certain physiological effects of available plant food upon germination, early development, development of vegetative parts, yields, development of seed, etc., with special reference to the effect upon length of growing season. Vt.

Nutrition of the tomato. Studies intended to throw light upon conditions within the plant, correlated with certain external treatments and the response of the plants to those treatments. At present confined to nitrogen nutrition. N.Y. Cornell.

Plant nutrition and its relations to parasitism involving a study of the causes and relationship of attack and mode or causes of resistance to attack of parasitic fungi in flax, cereals, and associated crops. N.Dak.

Secretion of enzymes by fungi and influence of carbohydrates on enzym production. N.Y. Cornell.

Investigation on respiration enzymes. To gain information on the processes concerned in the reduction of nitrates within the plant to amino compounds. Minn.

Poisonous plants. (See also Chemistry and Veterinary medicine.)

Poison plants of our grazing ranges. Ariz.

Poisonous range plants. Including Tetradymia glabrata, Atriplex canescens, and A. confertifolia, Halerpestes cymbalaria, Artemisia spinescens, and four species of lupines. Range management in relation to poisonous range plants. Nev.

Poisonous plant investigations. Surveys of the State to determine the plants causing most serious losses of stock, their distribution, the extent of losses, conditions under which losses usually occur and methods of preventing losses as far as possible. Oreg.

Microscopy of stock poisoning plants. (a) Histological studies of poisonous plants in Colorado. (b) Identification of the plant causing the death of an animal from its stomach contents. Colo.

Loco eradication. Mont.

Miscellaneous.

Plant survey and herbarium. Kans.

Flora of the Cayuga Lake Basin. A critical taxonomic, geographic, and soil study of our native plants. N.Y. Cornell.

Survey of the flora of Newfoundland with preparation of a flora. N.Y. Cornell.

Investigations on native plants, weeds, and fungi seed analyses and crop inspection. Investigation of the possible value of certain economic native plants. N.Dak.

Biological survey. To make a survey of and collect biological and economic data upon native and introduced plants and animals of the State, their distribution, habits, and agricultural importance. N. Dak.

Honey plants in Iowa. An investigation of the production of honey. Iowa.

Revision of the genus oxalis. A critical study of our eastern species of wood sorrel. N.Y. Cornell.

Identification laboratory. To identify samples of weeds, poisonous plants, ornamentals, trees, wild plants, mushrooms, and diagnose plant diseases. Md.

A study of the correlations between certain physical characteristics of plants and their capacity to yield. S. Dak.

Correlation studies with plants. Mont.

Interrelations (botanical). N.Y. Cornell.

Studies on the rest period in plants. N.Y. Cornell.

The conditions of parasitism. N.Y. Cornell.

Study with peaches on change of permeability and its relation to availability. Del.

Effect of low temperature on plants. Minn.

The influence of H-ion concentration on the injury of plant tissue exposed to low temperatures. N.Y. Cornell.

Study of the effect of ultra-violet light on plant growth. Mass.

Methods of measuring photosynthesis under field conditions, and effect of water supply, accumulation of products and other factors on the process. N.Y. Cornell.

Botany, miscellaneous. (Cont.)

Effect of smoke upon vegetation. Iowa.

Relations of the morphology and physiology of plants to drought resistance. Kans.

Transpiration of agricultural plants. Iowa.

The tolerance of plants to acid conditions as determined by the H-ion concentration. Del.

Tolerance of crops for alkali. Idaho.

Studies on polarity and inhibition. N.Y. Cornell.

The effect of one plant on another. Especially to ascertain whether good or bad influences are due to toxine or to bacteria. N.Y. State.

Variation of plants by growing them for successive generations in soil treated with large amounts of plant food. Md.

Manganese poisoning. Ala.

Tree injury from abnormal food supplies. Mont.

Chemical studies of pollen. Minn.

A study of the protein of maple seed and the protein and phosphorus compounds of pollen. N.Y. State.

Factors influencing the oil content of [cotton] seeds. S.C.

Physiological study of the viability of the pistil in certain plants. N.Y. Cornell.

Fixation of free nitrogen by algae. N.Y. Cornell.

Investigation of the question: Is there a quantitative relationship between nitrate nitrogen and free nitrogen fixed in algae? N.Y. Cornell.

A study of nuclear phenomena in the red alga *Batrachospermum*. N.Y. Cornell.

Enzymatic activity as a limiting factor in production. Del.

Relation of enzyme to yeast activity. Wis.

Reactions of enzymes to solutions within the plant. Del.

Influence of certain carbohydrates on secretion of amylase by *Botrytis* sp. N.Y. Cornell.

Botany, miscellaneous. (Cont.)

The effect of plant extracts on fungi and higher plants. N.Y. Cornell.

The utilization of Typha angustifolia and T. latifolia for heat insulation and other commercial products. N.Y. Cornell.

GENETICS.

General.--Analysis of inheritance.

Study of the correlation of characters and of inheritance in pure lines and varieties. Mont.

Determination of independence or coupling in unit characters of a mammal.--To determine in what degree different factors are inherited independently of each other in strains or races where these factors have always been inherited together. Ill.

The principles of heredity in certain plants. Calif.

Inheritance studies with small grains. Determination of relationship of characters as winter hardiness, nonlodging, and certain physiological and structural characters. Minn.

Inheritance study in cereals. A study of the laws of inheritance with reference to specific characters. Wash.

Correlation of characters in grain. Colo.

Mendelian studies with wheat and oats. N.Y. Cornell.

Oats experiments. Me.

Inheritance in oats. To determine the factors controlling the inheritance of color, hull, and hulllessness by means of hybridization and segregation. S.C.

Genetic studies of corn. N.Y. Cornell.

Mendelian studies with corn. N.Y. Cornell.

Genetic studies in corn, with special reference to linkage. N.Y. Cornell.

Genetic analysis of maize. Including (1) the inheritance of Mendelian characters in maize; (2) the relative frequency of crossing-over in microsporogenesis and megasporogenesis; (3) the occurrence and frequency of mutation in the factor of pericarp color in maize; and (4) competition among male gametes in maize. Mo.

General.--Analysis of inheritance. (Cont.)

Studies of inheritance in corn, particularly as applied to inbreeding.
Wis.

Fundamental study of inheritance in cotton. Tex.

The genotypic constitution of certain varieties of cotton.--To study the mode of inheritance and association of economic qualities in cotton.
(In cooperation with the U.S. Department of Agriculture). N.C.

Genetic studies of flax. N.Y. Cornell.

A study of inheritance of black hulled white kafir. Okla.

Genetic studies in soy beans. Ill.

Bean experiments.--Color and pattern inheritance. Me.

Transmissibility and degree of permanence of vegetative variations of the vine. Calif.

Inheritance of productivity of Rotundifolia grapes.--To establish standards of productivity for the most important varieties, to study the factors bearing upon productivity in order to determine methods to pursue in increasing productivity in Vitis rotundifolia and to watch for unusually productive vines. N.C.

Studies in the inheritance of sex in Rotundifolia grapes.--To establish the laws of transmission of sex applying to Vitis rotundifolia and to determine methods to be used in hybridization. N.C.

Mendelian studies with aquilegia. N.Y. Cornell.

Genetic investigations in the genus Crepis, the smooth hawksbeard. Calif.

Apple experiments.--Study of heredity in apple crosses. Me.

A study of Xenia in apples and of the factors which influence the fertility and sterility of apple varieties. Ark.

Principles relating to transmission of characters in the apple and peach as affected by selection and by crossing. Ill.

The genetic composition of peaches. A genetic analysis of certain varieties to determine degree and manner of transmission of heritable characters. Mass.

Mendel's law in relation to raspberry and blackberry hybrids. Wash.

General.--Analysis of inheritance. (Cont.)

A study of inheritance in the tomato. Penn.

Studies of inheritance in Orthoptera.--A study of the fundamental laws of inheritance in several species of the genus *Paratettix*. Kans.

The effect of temperature and moisture conditions on inheritance in Orthoptera. Kans.

Experimental analysis of the heredity factors determining milk and meat production in cattle. Wis.

Heredity studies with swine. Iowa.

The transmission of sex in dairy cattle. Ill.

Poultry experiments.--Experimental modification of the hereditary process through the action of internal secretion. Me.

Inheritance and morphogenesis in poultry. Mass.

Studies of inheritance in pigeons. Wis.

Breeding.

Minor breeding investigations. Calif.

Methods of selection breeding. Colo.

Breeding experiments to determine the behavior in inheritance of certain unit-characters. KY.

The effects of continued inbreeding. Wis.

A study of the effect of inbreeding in smooth brome grass (*Bromus inermis*) and alfalfa (*Medicago sativa*). N.Dak.

Investigation of the possibility of sex control. Wis.

Comparisons of pure line selection with hybridization as a method of improvement in wheat. Ohio.

The possibility of the establishment of a pure line among open pollinated plants. Vt.

The plant breeding value of mutation and other types of variation in wild and cultivated plants. N.Y. Cornell.

Breeding for hardiness in fruits. Minn.

Breeding. (Cont.)

Breeding work with apples.--For the purpose of studying the laws of inheritance in apples and of producing new types of fruit. Studies on self-sterility experiments on the mutual influence of stock and scion. (Highmoor Farm) Me.

Blue grey breeding. Iowa.

Studies of effects of inbreeding upon size, age of sexual maturity, litter size, vitality, etc., of guinea pigs. Kans.

Establishing a breed of sheep for winter lambing and a study of inheritance of characters. Okla.

Studies on inbreeding with Rhode Island Red fowls. Wis.

Relative influence of sire and dam on the offspring. Oreg.

Study of laws governing the breeding of domestic birds. R.I.

Hybridization.

Study of the laws of inheritance through hybridization. N.Y. Cornell.

Analysis of cellular structure of hybrids. Me.

Physiological studies of double pregnancies and the effect of the hybrid condition. Iowa.

A study of inheritance in a cross of Avena sterilis algeriensis and Avena nuda inermis. Ohio.

The inheritance in crosses between Sudan grass and Johnson grass.--To determine the mode of inheritance of the root systems in crosses between Johnson grass and Sudan grass. Ga.

Hybridization of cereals. S. Dak.

Sterility of hybrids of Nicotiana. Penn.

Hybridization of Rotundifolia grapes with other species.--To determine the various species with which Vitis rotundifolia will hybridize: To find methods of overcoming antipathy where it occurs, and to establish a scale of hybridization of Vitis rotundifolia with other species. N.C.

Mendelism in the hybrids of blackberries and raspberries, particularly with reference to leaf structure and habits of growth. Wash.

Study in the origin of species or the development and improvement by hybridization in the genera viola and rubus. Vt.

Hybridization. (Cont.)

Hybridizing poultry. Reciprocally crossing Barred Plymouth Rocks with other breeds. Experiments bearing on the inheritance of linked characters. Me.

Inheritance of characters.

Nature and inheritance of chemical constituents of certain vegetable oils. Wis.

Inheritance in hardiness of alfalfa.--To obtain data as to the genetics of hardiness in alfalfa and thereby to lay a foundation for future practical breeding operations. N.Dak.

The inheritance of prominent ear and stalk characters of corn and their relation to yield, namely: (a) Shape of ear; (b) length of ear; (c) number of rows per ear; (d) filling of tip; (e) indentation of kernel; (f) height of ear in stalk; (g) height of plant; (h) proportion of grain to cob. Ohio.

Inheritance of barrenness in corn. S.C.

A study of the inheritance of fruit characters in cotton. Ark.

A study of the methods of inheritance of characters of the cotton plant. Miss.

To determine the mode of inheritance of rust resistance in wheat and to produce rust resistant varieties. (In cooperation with the Office of Cereal Investigations, U.S.D.A.). Minn.

Inheritance of stem rust resistance of wheat. N. Dak.

Inheritance of fruit characters. Minn.

Inheritance of characters in tree, vine, and bush fruits. N.Y. State.

Inheritance of color in Rotundifolia grapes. To determine the laws governing inheritance of color in Vitis rotundifolia. N.C.

Inheritance of size of fruits in Rotundifolia grapes.--To determine the factors governing the size of berries in Vitis rotundifolia and method of transmission of the character. N.C.

Inheritance of flower color and flower form in Phlox drummondii and of flower color in Marabalis jalapa. Penn.

Inheritance of alkaloidal content and other characters in Datura. Wis.

Investigation of inheritance of disease resistance in plants. Wis.

Inheritance of characters. (Cont.)

Studies of color inheritance in guinea pigs. Kans.

Studies of inheritance of defects in guinea pigs. Kans.

Studies of the inheritance of size in guinea pigs. Kans.

Studies of color inheritance in rats. Kans.

Cattle experiments.--By pedigree studies and analysis of the records to determine why certain bulls transmit low or high milk yield or butter fat percentage. Me.

A study of the inheritance of characters in sheep breeding. Tex.

Inheritance of milk production and other characters in sheep. Ohio.

A study of the inheritance of wool production. Ohio.

Effect of cumulative selection on external characters [with poultry].
N.Y. Cornell.

Amount, distribution, and inheritance of fecundity in domestic fowl. N.J.

Hereditary factors as possible causes of in-shell deaths and subsequent low hatchability of hens eggs, and effects of single factors and their transmission in inheritance. Conn. Storrs.

Inheritance of sidesprigs. Kans.

Inheritance of blue in poultry.--To ascertain why the so-called blue color does not breed true. Kans.

Variation in and inheritance of egg shell color. N.J.

Study of Mendelian inheritance and linkage of egg production and feather color in poultry. Me.

Inheritance in egg production. Data on maturity as indicating productive ability, inheritance of size and color of eggs and similar characters. Nebr.

Inheritance of high egg production. Oreg.

Inheritance of egg production in heavy breeds. N.Y. Cornell.

Inheritance of egg production in Leghorns. N.Y. Cornell.

Variations and mutations.

Variations in the common daisy. N.Y. Cornell.

The origin, nature, and inheritance of apparent mutations in certain plants. Calif.

Inheritance of variations induced by difference in nutrition of wheat. N.Y. Cornell.

Study of variation in pure line of wheat with respect to size of kernel and its effect upon yield. Ohio.

A study of the variations and hereditability of variations in fruit trees. N.Y. State.

SOILS.

General soil studies.

Soil studies, especially regarding conditions and properties of phosphoric acid, potash, and humus, and the nitrifying and other biological properties of soil. Tex.

The abnormality of soils in cylinder and lysimeter experiments.--To determine the presence or absence of zinc in cylinders where crops have failed: A comparison of glazed tile and galvanized iron cylinders, with and without a coating of asphalt. The effect of surface drainage and the losses of nitrogen and lime. Tenn.

Soil experiment fields. Including the following fields: Lexington, Berea, Greenville, Russellville, Lone Oak, Mayfield, Lincoln, Fariston, and Campbellsville. Ky.

Systematic study of Michigan's soils. Including soil classification, mapping, composition, topography, erosion, present state of productivity, land utilization, and recommendations for soil improvement. Mich.

Acidity, soil reaction, liming. (See also Fertilizers- lime.)

Soil acidity. R.I.

Soil acidity studies.--To throw more light upon the various phases of soil acidity, its nature, its kinds of different types of soil, its effect upon various crops, the effect of various fertilizers and soil treatments upon soil acidity. Ind.

Acidity, soil reaction, liming. (Cont.)

Study of the nature and intensity of soil acidity. W.Va.

A study of acid soils of the State. Ark.

Study of physical-chemical aspects of soil acidity. Investigation of (a) the relationship of absorption to the production of soil acidity; (b) the effect of soil acidity on the osmotic and other physical-chemical properties of soils. Mich.

Chemical investigations of acid soils.--To determine why some acid soils of Oregon respond to lime and others do not. Oreg.

The cause of toxicity of acid soils and a consideration of the hydrogen ion as one of the probable causes. Ala.

Soil acidity and liming. Nebr.

Soil acidity tests and lime trials. Oreg.

Study of soil lime requirements. The development of the calcium acetate method of determining so-called soil acidity and of a simple means of determining soil organic matter content. The nature of so-called soil acidity in Vermont soils. Vt.

Testing soils for the lime need. Mo.

Lime requirements of an acid soil. To compare the value of different forms of lime. Md.

Lime absorption and acidity. Mass.

Lime requirements of the soils of New Hampshire. N. H.

Lime requirement on Thompson Farm. Penn.

Rates of liming experiment. (Martinsville and Holland Substations) Va.

Effects of liming and study of rate of liming. Ala.

The tolerance of plants to acid conditions as determined by the H-ion concentrations. Del.

The soil acidity relations of soil, higher plants, and bacteria. Wis.

Alkali.

Action of soil alkali. To determine the effect of organic matter and soil texture on the action of alkali and the changes which occur in alkali salts in the soil. Utah.

Alkali. (Cont.)

Alkali and plant food under irrigation and drainage conditions. N.Mex.

A study of the chemical, physical, and physiological effects of salts on soils and crops, and of methods of reclaiming alkali lands. Calif.

A chemical, biological, and physiological study of alkali in soils, in its relations with crop productions. Calif.

Modification of tolerance for alkali by concomitant soil conditions. Ariz.

Tolerance of crops for alkali. Idaho.

Reclamation of alkaline lands by flooding and tile drainage. Calif.

Irrigated soil investigations. Correction of alkali and "slick spots."
To find some method of eliminating the "slick spots." (Caldwell Substation) Idaho.

Gypsum treatment of black alkali at the University Farm. Ariz.

Composition of soils.

The composition of soil types. Tex.

Physical, chemical, and biochemical studies of soils to which nitrate of soda has been applied. N.J.

The chemical analysis of soils from the experiment farm at Sheridan. To find the per cent of all the soil constituents at three depths (surface, intermediate subsoil, and deep subsoil) at five year intervals. (In cooperation with the Bureau of Plant Industry, U.S.D.A.). Wyo.

A comparison of the total calcium content of cultivated and virgin soils with particular reference to the possible limitation of crop production by deficiency of this element. Ky.

Nitrogen fixation.

New studies on nitrogen fixation. Calif.

Influence of soil reaction on nitrogen fixation by legumes. N.J.

Fixation of nitrogen in Colorado soils. In relation to the growing of potatoes in the Greeley section. Colo.

The influence of nutrition on nitrogen fixation by Azotobacter chroococcum. Ohio.

Nitrogen transformation.

Influence of higher plants on nitrogen transformation in soils. N.Y. Cornell.

The conditions affecting the physiology of the process of nitrification. Ohio.

Ammonification and nitrification studies. Utah.

Soil organisms, their functions and their relation to the ammonification of farm manures. N.Y. State.

Organic matter in soils.

A study of the organic matter of soil.--To ascertain the relation between the cropping capacity of the soil and the character of the organic matter. N.Dak.

Relation of organic matter (humus) of the soil under different systems of soil management to crop production, with special reference to the changes which take place in the plant food content and the physical condition of the soil. Iowa.

The quantitative relations of organic matter in soils. Ark.

Maintenance of organic matter.--To determine the most practicable means of maintaining and increasing the organic content of Oregon soils. Oreg.

Some of the relations of organic carbon in soils. N.Y. Cornell.

Effect of lime on the decomposition of organic matter in soils. Del.

Residual effect of crops. (See similar heading under Field crops.)

Soil erosion and leaching.

Control of erosion. Ill.

Investigation of water penetration, evaporation, run-off, and erosion in the case of an average Missouri soil. Me.

Amount and condition of drainage water from soils, with special reference to the effect of liming and cropping. N.Y. Cornell.

A study of soil erosion conditions in Iowa. Iowa.

Soil fertility. (See also Field crops- rotations.)

Methods of maintaining soil fertility. N.J.

Permanent fertility studies (Greenville Nephi). Utah.

Soil fertility investigations in western Washington. Wash.

Soil tests (old South soil test and North soil test). Mass.

Fertility studies on 104 one-tenth acre plats. N.Y. State.

The comparative effect of different fertility treatments on crop yields in the Hopkins soil bins. Ill.

Maintenance of soil fertility.--By means of various rotations. (For the various rotations used, see Field crops - rotations). Ohio.

Fertility investigations with two-year crop rotation, including the effect of manure and crop residues; the effect of rock phosphate with manure (live stock system); and the effect of rock phosphate with crop residues (grain system). Iowa.

Fertility investigations with three-year crop rotations, including the effect of manure and crop residue; the effect of rock phosphate with crop residues (grain system); and the effect of rock phosphate with manure (live stock system). Iowa.

Fertility investigations with four-year crop rotation, including the effect of various applications of manure and of crop residues; the effect of rock phosphate, bone meal, acid phosphate, potassium salts, and complete commercial fertilizers with manure (live stock system); the effect of the same fertilizers with crop residues (grain system) no manure; the applications of complete commercial fertilizers broadcasted or applied in the hill; and the effect of limestone and air-slaked lime. Iowa.

Fertility investigations with five-year crop rotation, including alfalfa. Including the effect of manure and crop residues; the effect of rock phosphate and acid phosphate with manure (live stock system); and the effect of phosphates with crop residues (grain system). Iowa.

Maintenance of soil fertility. A comparison of the influence of cropping systems with and without manure in five different four-year rotations, four different six-year rotations, and one three-year rotation. To determine the best methods of maintaining or increasing the productive capacity of the Fargo clay in the Red River Valley. N. Dak.

Fertility and rotation experiments.--Crop rotation for fertility maintenance. (Hermiston Branch Station) Oreg.

Soil fertility. (Cont.)

The influence of rotations upon the maintenance of soil fertility. S.Dak.

To ascertain the effect on soil productivity of continuous cropping, when the organic matter of the soil is maintained by means of seeded crops. N.Y. Cornell.

Maintenance of soil fertility. A study of the influence of continuous culture as compared with rotation culture. The following crops are grown under continuous culture; wheat, corn, alfalfa, barley, oats, and brome grass. To determine the best methods of maintaining or increasing the productive capacity of the Fargo clay in the Red River Valley. N.Dak.

Fertility investigations with continuous cropping (corn) on Wisconsin drift soil. (a) The effect of manure and lime. Iowa.

Maintenance of soil fertility. Tobacco, continuous. (Germantown Test Farm) Ohio.

Maintenance of soil fertility. Continuous cropping with corn, oats, and wheat. Ohio.

Continuous cropping without clover or manure. (Northeast Demonstration Farm) Minn.

Study of the residual effects upon the soil, and of the utilization by rotation crops, of the commercial fertilizers, manure, and lime. Penn.

To test various mixtures of fertilizer salts on different courses in a crop rotation as means of maintaining soil productivity. N.Y. Cornell.

Maintenance of soil fertility.--A comparison of steamed bone meal, ground raw rock phosphate and acid phosphate, as carriers of phosphorus in live stock and grain farming systems. To determine the best methods of maintaining or increasing the productive capacity of the Fargo clay in the Red River Valley. N.Dak.

Maintenance of soil fertility.--A study of the influence of supplementing manure and crop residues respectively with acid phosphate, ground limestone and sulphate of potash in various combinations. To determine the best methods of maintaining or increasing the productive capacity of the Fargo clay in the Red River Valley. N. Dak.

Maintenance of soil fertility.--A study of the effect of reinforcing farm manure with raw rock phosphate in systems of continuous cropping with wheat, corn, oats, and barley; and a five-year rotation consisting of corn, barley, wheat, sweet clover, and flax. To determine the best methods of maintaining or increasing the productive capacity of the Fargo clay in the Red River Valley. N.Dak.

Soil fertility.(Cont.)

Maintenance of soil fertility on the Edgeley loam at the Edgeley Substation, on the Barnes fine sandy loam at the Langdon Substation, and on the Williston silt loam at the Williston Substation. To determine the influence of the use of farm manure and crop residues supplemented with artificial fertilizers under rotation culture. N. Dak.

Soil rejuvenation study. The use of green manure crops and the effect of certain mineral fertilizers. N.H.

Fertility investigations on the effect of manure, rock phosphate, and commercial fertilizers on soils on certain State farms. Iowa.

The effect of continuous application of fertilizer on composition of soils. S.C.

A study of soil requirements as to certain constituents, including chiefly the relations of plant to soil in regard to the amounts of sulphur and calcium. N.Y. State.

Sulphur in plants and soils and its significance to permanent soil fertility; also determination of the best sulphur compound for correcting sulphur deficiency in soil. Ky.

The relation of sulphur to soil fertility and plant composition. Mainly with alfalfa and red clover. Oreg.

The effect of adding lime, calcium sulphate, and sulphur to Idaho types of soils. Idaho.

Fertility plats: (1) To measure the residual effects of the previous plat treatments upon the crop yields; (2) to determine the ability of various legumes to adapt themselves to a variety of conditions; and (3) the effect of legumes grown upon the chemical composition and the bacteriological properties of the soils. W.Va.

Timber soil investigations.--To investigate the most efficient method of soil improvement by the growth of legumes. (Sandpoint Substation) Idaho.

Effects of certain crops on soil fertility. Plats planted to various crops and combinations of crops, followed by wheat as an indicator of the fertility. Miss.

Effect of prolonged production of alfalfa upon soil fertility. Comparison of plant food contents of variously cropped soils. Kans.

A study of ^{the} nitrogen content of the soils.--The effect of the cowpea crop on soil fertility, with special regard to a wheat crop and a corn crop following. Tenn.

Soil fertility. (Cont.)

A study of the underlying factors influencing soil fertility as evidenced by the chemical composition of the soil solution. Calif.

An investigation of the changes in the crop-producing power and the physico-chemico-biological properties of soils long under cultivation. Mich.

The rate of accumulation of nitrogen and carbon in soils under different systems of green manuring and cropping. To determine the effect of different systems of green manuring and cropping upon the accumulation and loss of nitrogen and carbon in the soil. Mo.

To determine what is in certain types of soil, either chemical, physical, biological, or otherwise, which makes them especially adapted to particular crops and underlie their fertilizer requirements. (In cooperation with U.S. Department of Agriculture). N.C.

Soil fertility studies from the standpoint of the vegetable grower. Md.

Experiment in maintaining fertility in the garden (1) The minimum amount of manure necessary to obtain profitable vegetable crops; (2) to what extent green crops and fertilizers can be substituted for manure; (3) a profitable combination of chemical fertilizers and manure; and (4) the effect of lime upon crop production. N.H.

Soil fertility as influenced by microorganisms in their relation to the presence and disappearance of organic matter. Mass.

Availability and utilization of plant nutrients in soils under different methods of treatment. N.Y. Cornell.

Plant food losses from soil due to different crops. Mont.

A detailed study of the effect of the barley plant on the soil solutions. Calif.

General investigation of the peculiar characteristics of Hawaiian soils and of their relations to fertility. Hawaii.

The power of Idaho soils to retain and establish equilibrium between carbonate and bicarbonate salts as shown by the soil extract. Idaho.

Permanent system of soil fertility for building up and maintaining the production of Illinois soils. Ill.

A survey of the potential fertility of West Virginia soils. To determine the potential supplies of plant food, lime, and organic matter in the soils of the State. W. Va.

Soil fertility. (Cont.)

Soil investigations: To determine the needs of the soils of this area. (Caldwell Substation). Idaho.

Cooperative demonstration work. Assisting the extension division in determining the need of certain soils for fertilizers and soil amendments. Idaho.

Fertility investigations in cooperation with county advisers. Iowa.

Soil flora.

Effects of different soil treatments, long continued, upon bacterial activity in the soil. Mo.

Some biological changes brought about in certain soils by different cropping, fertilizers, liming, and manurial treatments. Del.

The modification of soil flora through climatic influences. Calif.

Soil fertility as influenced by microorganisms in their relation to the presence and disappearance of organic matter. Mass.

The occurrence and metabolism of soil actinomycetes and their probable role in soil fertility. N.J.

The relationship between the bacterial flora, especially the nitrogen fixers, and the chemical composition of the soil. Utah.

Relation of biological activities in the soil in crop production as affected by definite agricultural practices. Wash.

Factors which accelerate or retard the action of microorganisms, particularly as affecting the accumulation of plant foods and of disease-infected or of disease-producing residues in the soil.--To determine the relation of certain bacteria and fungi of the soil to cropping methods, their distribution, habits of life, and the material upon which they are living, to arrange for the control of conditions for the maximum efficiency of microorganisms, with reference to increasing crop production and for control of those which tend to be destructive. N. Dak.

Soil organisms, their functions and their relation to the ammonification of farm manures. N.Y. State.

Effect of green manuring on activity of soil microorganisms. Md.

Bacteriological effect of green manures on a typical Mississippi soil. Miss.

Soil bacteriological investigations.--The occurrence and action of molds in soil; the effects of fertilizing materials on bacterial action; relation between bacterial activity and crop production; inoculation of legumes; and the transformation and need of sulphur. Iowa.

Soil flora. (Cont.)

Effects of alkali salts on bacteriological activities in soils.
Idaho.

Bacteriological studies of alkali soils in relation to nitrogen
fixation. Colo.

The effect of straw on the biological soil processes. Wash.

Effects of wood and forest products on bacteriological activities in
soil: (a) Ammonification and nitrification; (b) nitrogen fixation.
Idaho.

Azofication.--Effect of reaction upon the growth of *Azotobacter*. Penn.

A study of the influence of the absolute reaction of the soil solution
upon the growth and activity of *Azotobacter* in soils. Kans.

The influence of nutrition on nitrogen fixation by *Azotobacter*
chroococcum. Ohio.

Soil microbiology.--To determine the role played by microorganisms in
the decomposition of peat. Mich.

The relation of microorganisms to the decomposition of organic com-
pounds toxic to the growth of higher plants. Ala.

The soil solution and its role in the life of microorganisms. Mich.

The isolation and study of nitrifying bacteria. Idaho.

Studies on the longevity of *B. radiculicola* in the soil. After the
crop is removed how long do the bacteria live in the soil and retain
the ability to inoculate the next crops? Mo.

Microbiological study of certain Oregon soils having an acid reaction.
Oreg.

Soil fungi. N.J.

Soil molds. Iowa.

Soil management.

Soil management work. To ascertain how best to manage farm land in the
interior. Alaska.

Soil management studies, including (1) moisture and structural relation-
ships of the soil; (2) fertilizer needs of representative soils; (3)
immediate and residuary effects of different forms of lime and phos-
phorus. Mich.

Conserving the plant food in trucking soils during the winter. Md.

A preliminary study of the causes and corrections of persistently un-productive garden soils. Penn.

Reclamation experiment to determine best method of improving worn-out gullied soils. (Bowling Green Substation) Va.

Effect of dynamiting field subsoils on field crops. Ariz.

Summer fallow experiment. (Akron) Colo.

Experiments to determine the best systems of soil management for the most important soil types in Missouri, including the need of lime, phosphorus, potash, and nitrogen as well as the return to be secured, the use of green manures, farm manures, in some cases drainage and certain cultural methods. Mo.

Tests of certain methods of soil management applied to Ontario loam and Volusia silt loam at Churchville, Alfred, and Virgil. N.Y. Cornell.

Restoring pasture and meadow on volcanic ash.--To introduce tame grasses and clovers as far as practicable to take the place of native grasses destroyed by ash fall. Alaska.

Soil improvement.--To build up a new soil from volcanic ash. Alaska.

Soil experiments.--To determine physical and chemical properties of Guam soils or soil conditions; and the ultimate improvement of Guam soils. Guam.

Soil management and fertilizer investigations. The upbuilding of fertility of the more important soil types. Md.

Management of marsh soils. Wis.

Management of sandy soils. Wis.

Management of heavy clay soils. Wis.

The effect of drainage, deep tillage, manure, and lime on "push" soils. Iowa.

Soil moisture.

Soil moisture studies. (In cooperation with the Offices of Dry Land Agriculture and Cereal Investigations, U.S.D.A.). (Dickinson Substation) N.Dak.

Soil moisture. (Cont.)

Soil moisture studies. Utah.

Soil moisture constants. Utah.

Critical soil moisture points.--To determine and measure any difference in the wilting point and time of irrigation for different crops and the factors affecting the same. Oreg.

Moisture, soil, and crop relations. Utah.

Relation of soil moisture, structural development, and yield of small grain. Colo.

Movement of water in soils. Minn.

The effect of the initial moisture present on movement of water in soil. KY.

Factors affecting distribution of water in soils. Calif.

The effect of organic matter on soil moisture relations. Calif.

Soil fertility experiments.--Effects of types of cultivation upon moisture and nitrates in the soil. Ark.

Soil moisture studies under dry farming. Oreg.

Soil moisture investigations as related to problems in dry farming. Wash.

Soil moisture studies in connection with irrigation for different soils and different crops. Oreg.

Lysimeter investigations.--Percolation for different soils and crops with approximately uniform applications of water. (In cooperation with the U. S. Department of Agriculture). (Hermiston Branch Station) Oreg.

Studies of the amount and importance of drainage water percolating through the soil in the soil fertility lysimeter as affected by cropping and germination. Ill.

Evaporation of soil water and methods of conservation for plants.--To determine the efficiency of windbreaks in the conservation of water for plants. Okla.

Studying concentration of soil solution and measuring forms of soil water. Mich.

Soil moisture. (Cont.)

Soil moisture and nitrate investigations. (In cooperation with the U.S. Department of Agriculture). (Moro Branch Station) Oreg.

The relation of soil moisture and of the moisture content of sand cultures to balanced fertilizer rations and to the physiological value of nutrient mixtures for plants. N.J.

Soil nitrogen.

Soil moisture and nitrate investigations. (In cooperation with the Office of Cereal Investigations, U.S.D.A.). (Moro Branch Station) Oreg.

Nitrate production and accumulation in soils in their relation to an economical utilization of nitrogen in cropping systems. Ill.

Nitrate production in a soil as affected by the crop and cultivation.-- To see whether the crop and cultivation cause any effect on the amount of nitrate nitrogen produced in a soil. Mo.

Study of conditions which favor the development and control of nitrates in the soil. Studies of effect of mineral salts, organic matter, and moisture on nitrification in four soil types. Mont.

Organic nitrogenous compounds of peat soils, the effect of lime on muck and peat soils. Study of the quantitative relationship between glutaminic and aspartic acids and the acid amid nitrogen and isolation of individual nitrogenous compounds. Mich.

The protein content of wheat and nitrogen content of the soil, when cropped continuously to wheat and when cropped under a definite rotation system. Idaho.

The relation of concentration of soil solution to nitric nitrogen in soils containing large quantities of available nitrogen, and its effect upon plant growth. N.Mex.

Amount and form retained by surface and subsoil of different forms of nitrogen applied to surface soil. Tenn.

Physical, chemical, and biochemical studies of soils to which nitrate of soda has been applied. N.J.

Studies on the nitrogen content of soils as affected by storage. Mo.

Soil fertility experiments.--Effects of type of cultivation upon moisture and nitrates in the soil. Ark.

Soil nitrogen. (Cont.)

Effect of nitrogenous fertilizers on nitrogen loss from the limed and unlimed soil. Tenn.

Influence of calcium carbonate in soil on the various forms of nitrogen. N.Y. Cornell.

The changes in the nitrogen content of the soil under various conditions, such as limed, unlimed, fallow, and with and without green manure crops, etc. Tenn.

The effect of sod on the disappearance of nitrates from soil when the trees are injured by sod. N.Y. Cornell.

The effect of different cover crops or green manures when plowed under, in the formation of nitrates in soils. N.Y. Cornell.

Lysimeter investigations.--Study of nitrogen balance in legume and non-legume rotations. N.Y. State.

The effect of crop rotation, crop removals, and soil treatment, upon the nitrogen content of the soil. Ill.

Sweet clover for nitrate production in field soils. Ill.

To measure the nitrogen balance in soil under alfalfa and timothy grown continuously and under certain crop rotations. N.Y. Cornell.

Nitration study.--To determine the nitration under brome grass sod and to compare it with that under wheat, corn, barley, and peas. N.Dak.

Soil phosphorus.

Fixation of phosphoric acid by soils. Va.

Phosphorus relations of soils and plants. Wis.

A study of the phosphorus supply of Ohio soils. Phosphorus combinations and availability. Ohio.

Soil physics.

Relation of soil temperature to soil parasites and other organisms, including cabbage yellows, flax wilt, tomato wilt, potato Rhizoctonia, legume tubercles. Wis.

Soil physics. (Cont.)

A study of the hourly and daily fluctuations in the temperature of the soil. Records at different depths under bare and cropped surfaces. Md.

Study of colloidal swelling of dry soil when wetted. Ariz.

To determine the soil temperatures at the Michigan agricultural college temperature station throughout a series of years. Mich.

Soil potash.

Studies in possible changes in soil potassium. Potassium supply of soils as affected by fertilizer treatment and cropping. Ohio.

An investigation of the factors affecting the availability of the potassium compounds of the soil. Md.

The rendering available of potash in insoluble silicates by the action of soil bacteria. Ky.

Study of availability of soil potash. Mass.

A study of the availability of soil potash with the object of developing a system of diagnosis for the soils of the State. Mass.

Cause of apparent low content of available potash in soils giving feeble response to potash fertilizers as shown by the usual analytical methods. Ga.

Soil sterilization.

Steam sterilization of greenhouse soils.--To determine a better method of steam sterilization of greenhouse soils than the ones now practiced. Ind.

Greenhouse studies on soil sterilization and fertilizer studies with chrysanthemums, carnations, sweet peas, and roses. Ala.

The effects of heating soils on germination and plant growth and the development of diseases in heated soils which have become reinfested. Wis.

Soil sulphur.

Sulphur in plants and soils and its significance to permanent soil fertility; also determination of the best sulphur compound for correcting sulphur deficiency in soil. Ky.

Soil sulphur. (Cont.)

Influence of lime and magnesia on conservation of soil sulphur. Tenn.

The need of Texas soils for sulphur. Tex.

Soil surveys.

Arkansas soil survey. Ark.

Soil survey of the Big Valley area, Lassen County, Calif. Calif.

Soil survey of Brawley area. Calif.

Soil survey of Delhi land settlement tract. Calif.

Soil survey of the Eureka area. Calif.

Soil survey of the Victorville area. Calif.

A detailed survey of a designated area each season. (In cooperation with the Bureau of Soils, U.S.D.A.). Idaho.

Soil survey. Ill., Utah.

Soil survey of Indiana.--To determine and accurately map the various soil types of the State, including the making of chemical analyses and a detailed description of each soil type, together with a discussion of the fundamental methods practiced and the general agricultural adaptation of the particular soil type. (In cooperation with the U.S. Department of Agriculture). Ind.

Detailed soil survey of Iowa: (a) The preparation of soil maps of each county, showing the location of all soil types, roads, streams, etc., and of a report describing all soil types, giving results of soil analyses, fertility studies on individual types in the greenhouse and field, and recommendations for treatment. Iowa.

Soil surveys. Ky.

Soil survey of the State. (In cooperation with the Bureau of Soils, U.S.D.A.). Md.

The determination and mapping Missouri soil types (soil survey). Mo.

Soil survey of the State.--To map and establish the boundaries of the different types of soil occurring in the several counties of the State. (In cooperation with the Bureau of Soils, U.S.D.A.). N.C.

Soil survey. (In cooperation with the Bureau of Soils, U.S.D.A.). Oreg., Tex.

Soil types.

To ascertain whether the soil type, as now distinguished, is an index to the fertilizer needs of a soil. N.Y. Cornell.

To ascertain whether the composition of a soil type, as now classified, is fairly uniform and characteristic. N.Y. Cornell.

Peat soils. Minn.

The peat soils of Idaho. Idaho.

Chemical and bacteriological studies of peat. N.J.

Subsiding and compacting of peat soils. Calif.

Organic nitrogenous compounds of peat soils, the effect of lime on muck and peat soils. Study of the quantitative relationship between glutaminic and aspartic acids and the acid amid nitrogen and isolation of individual nitrogenous compounds. Mich.

Field and laboratory investigations with muck soils. Mich.

Sandy soils. Minn.

Experiments on Muskeg soils. Liming native Muskeg. (North Central Branch Station) Minn.

Experiments on Muskeg soil. Rate of application of commercial fertilizers on Muskeg. (North Central Branch Station) Minn.

Fertilizer on Muskeg for garden crops. (North Central Branch Station). Minn.

Fertilizer treatment on Muskeg for grain and grasses. (North Central Branch Station) Minn.

The effect of drainage, deep tillage, manure, and lime on "push" soils. Iowa.

An investigation to determine the plant food content and the acidity of each type of soil in each of the counties of Iowa. Iowa.

Fertility investigations on the southern Iowa loess. Iowa.

Fertility investigations on Wisconsin drift soils. Iowa.

An investigation to determine the value of complete commercial fertilizers on Wisconsin drift soils. Iowa.

Pot culture studies of the fertilizer requirements of different soil types. Md.

Soil management and fertilizer investigations. The upbuilding of fertility of the more important soil types. Md.

Soil type experiment.--To determine the plant food deficiencies of the main types of soil as mapped in the State. N.C.

Soils of different drift sheets. A field study of the depth of leaching of carbonates and a laboratory study of the influence of the leaching upon the other constituents in the soils of the southeastern low-line counties; a study of the H-ion concentration of soils and subsoils from the prominent soil types on different drift sheets. Minn.

Glacial soils of the gray drifts. Minn.

Studies of the tight clay layer in the soils of the level prairies of Missouri. To determine the materials and conditions responsible for the tight clay layer which underlies the level prairies, particularly in the northeastern and southwestern portions of Missouri and to find, if possible, some means of lessening its influence upon the productivity of these soils. Mo.

A study of the soils of the Chataqua County "Grape Belt." N.Y. State.

A study of the effect of lime and organic matter on the impervious Kirkland upland soil. Oklahoma.

Soil correction trials.--Crops, fertilizers, and cultural treatment for "white land." Oreg.

Soil correction trials.--Crops, fertilizers, and cultural treatment for "black sticky land." Oreg.

Field and pot tests to determine the fertilizer requirements of Dekalb soils. Penn.

Field experiment on Westmoreland soil.--To determine the lime and fertilizer requirement. Penn.

Field experiment on Volusia soil.--To determine the lime and fertilizer requirements. Penn.

Study of the fertilizer and lime requirements of Rutherford County soils. Tenn.

Tillage as related to fertility and productivity.

Tillage methods. (In cooperation with the Offices of Dry Land Agriculture and Cereal Investigations, U.S.D.A.). (Dickinson Substation) N.Dak.

Tillage as related to fertility and productivity. (Cont.)

Crop rotation and tillage studies. (In cooperation with the Office of Dry Land Agriculture, U.S.D.A.). (Dickinson, Edgeley, Hettinger, and Williston Substations) N.Dak.

Cultivation weed experiment.--To study the effect of weeds growing unmolested, killing weeds by scarping but producing no mulch, and shallow cultivation with both blade and level cultivator, on the yield of crops, particularly corn, both with and without the "standard fertility" treatment. Ill.

Field crop investigation under both dry farming and irrigation. Tillage experiments with wheat, oats, barley, rye, field peas, corn, alfalfa, sunflowers, grasses, potatoes, and other minor crops. (In cooperation with the Office of Cereal Investigations, U.S.D.A.). (Burns Branch Station) Oreg.

Tillage experiments.--Different methods of handling the summer fallow for wheat production. (In cooperation with the Offices of Cereal and of Forage Crop Investigations, U.S.D.A.). (Moro Branch Station) Oreg.

Time and method of intertillage. Tex.

Time and method of seedbed preparation. Tex.

Cultural methods with farm crops.--To study the effect of subsoiling, packing, etc. (Northwest Experiment Farm) Minn.

Disking v. plowing. (Northeast Demonstration Farm) Minn.

Effects of type of cultivation upon moisture and nitrates in the soil. Ark.

A study of the effect of stirring soil on moisture content, oxidation, nitrification, and crop yield. S.C.

Tillage experiments.--Different methods and time of plowing. (In cooperation with the Offices of Cereal and of Forage Crop Investigations, U.S.D.A.). (Moro Branch Station) Oreg.

Fall v. spring plowing. (Northeast Demonstration Farm) Minn.

Deep and shallow tillage for various soil types. Wis.

A study of the effect of deep and shallow plowing at Strongsville, Ohio. Ohio.

A comparison of 15 in. plowing with 7 1/2 in. plowing and both with 7 1/2 in. plowing plus additional 7 1/2 in. subsoiling. Ohio.

Depth of plowing test.--To determine the effect on the growth of crops on peat soils by turning the soil at different depths. N.C.

Miscellaneous.

Solubility effect of ammonium sulphate on the soil. Mass.

Translocation of soluble salts in soils and its relation to amount and manner of application. Mich.

The immediate and residuary effects of soluble salt on the physical and chemical properties of soils. Mich.

Agricultural possibilities of logged-off lands. Idaho.

Glacial water levels in Tompkins and Cayuga Counties. N.Y. Cornell.

FERTILIZERS.

(See also Soil fertility and Botany- Plant nutrition.)

Fertilizer experiments, general. (See also Field crops- specific crops and Rotations.)

Soil fertility experiments: Fertilizer experiments. Ark.

Fertilizer experiments. Minn., (Delta Branch Station) Miss., (In cooperation with the U.S. Department of Agriculture). (Burns Branch Station) Oreg.

Cooperative fertilizer experiments. Nebr.

Fertilizer experiments on the chief soil types of the State. Oreg.

Fertilizer tests. (Northwest Experiment Farm) Minn.

Cooperative fertilizer tests. (Holly Springs Branch Station) Miss.

General comparative fertilizer tests. S.C.

Tests of commercial fertilizers with and without manure. (Astoria Branch Station) Oreg.

General comparative fertilizer tests on the various soil types in South Carolina conducted in cooperation with farmers. S.C.

Fertilizer - rotation experiments. Ala.

To investigate the value of commercial fertilizers when applied to crops in a rotation. (Sandpoint Substation) Idaho.

Fertilizer experiments with truck crops in a three-year rotation on brown silt loam in central Illinois. Ill.

Fertilizer experiments, general. (Cont.)

Fertilizer, rotation, and soil improvement investigations. Tex.

Crop rotation and fertilizer studies.--To determine the relative merits of several different crop rotations and to compare different systems of fertilization, including commercial fertilizers and farm manures. Ind.

Crop rotation and soil fertility experiments. Tests of crop rotations, commercial fertilizers, and manure. Kans.

To make comparative studies of various rotations and fertilizer applications in regard to their effect upon crop and soil. Nebr.

Fertilizer ratio experiment, so-called "triangle experiment." (In cooperation with the Bureau of Plant Industry, U.S.D.A.). N.J.

Commercial fertilizers for major crops. (In cooperation with the Office of Western Irrigation Agriculture Investigations, B.P.I., U.S.D.A.). (Hermiston Branch Station). Oreg.

Soil fertility experiments: Sources of plant food. Ark.

Soil fertility experiments: Rates and time of applying plant foods. Ark.

Fertilizer experiment.--To determine the kind and amount of fertilizer most profitable on different soils, using rotations common to each section. (Central and Substations) N.C.

Soil test experiment.--To show what ingredients are most beneficial for each crop and the relative amounts of each ingredient necessary for a balanced fertilizer. (Aroostook Farm) Me.

The effect of fertilizer treatment on composition of the crop, with particular reference to the effect of concentration and the rate at which the fertilizer is supplied. P.R.

Irrigation agriculture investigations.--A test of commercial fertilizers and barnyard manure. (Garden City Branch Station) Kans.

Soil amendments.--Use of sulphur, lime, and gypsum on leguminous crops. Idaho.

Liming and fertilizer experiments, including a comparison of different phosphates. Tenn.

Experiments to determine the value of bat guano as a fertilizer. Mo.

The value of amino-phos as a fertilizing material. N. J.

Fertilizer experiments, general. (Cont.)

General comparative fertilizer tests at the Pee Dee and Coast Station, with corn, cotton, and small grain. S. C.

Fertilizer experiments with truck crops in a three-year rotation on yellow silt loam in Union County. To determine a rational soil treatment for truck crops in southern Illinois. Ill.

Cooperative fertilizer experiments on "flat woods" soil. To determine what fertilizer or combination of fertilizers will be best for the various crops. Miss.

Renewed fertilizer experiments.--Lexington field. Ky.

A critical and statistical study of long time fertilizer experiments. The Ohio and Pennsylvania experiments. Calif.

Borax.

Borax fertilizer experiment. (In cooperation with the Bureau of Plant Industry. U.S.D.A.). N.J.

Effect of borax on plant life. N.H.

The influence of borax in fertilizers on plant growth. S.C.

Quantitative borax test in connection with potash fertilization. To determine the extent to which borax in fertilizer may be injurious under different methods of application in ordinary field practice. Ind.

Green manures.

Study of green manures. Del.

Effect of green manuring on the soil. Va.

Green manure and cover crops.--The determination of the green manure and cover crops best adapted to local conditions and the ultimate improvement of Guam soils. Guam.

Experiments in forage, green manure, and winter cover crops. To determine the best use of rye, winter vetch, sweet clover, the common clovers, and alfalfa for forage, green manures, and winter cover crop purposes. Md.

The relation of the various forms of lime to the rate of decomposition of green manure. Del.

Green manures. (Cont.)

Experiment to determine best green manure crops for section. (Martinsville Substation) Va.

Trials with various legumes for green dressing purposes.--To find a legume resistant to caterpillar and fungus attacks which will be suitable for green dressing purposes. Virgin Islands.

Green manuring experiments, including crimson clover, hairy vetch, rye, red clover, and alsike clover. (Branchville Substation) Md.

Green manuring experiments, including cowpeas, soy beans, and buckwheat. (Branchville Substation) Md.

Green manuring experiments, with cowpeas in particular. Tenn.

Composition, age, and condition as factors in the rate of decomposition of sweet clover and other crops. Ill.

Clover utilization. (Northeast Demonstration Farm) Minn.

Effect of green manuring on activity of soil microorganisms. Md.

Bacteriological effect of green manures on a typical Mississippi soil. Miss.

Lime. (See also Soils- acidity.)

Field tests with lime.--To ascertain beneficial effects of liming, especially on the poorly drained bottom land. Alaska.

Lime studies.--To determine whether crops can be successfully grown with lime and phosphates alone. N.C.

Studies of "lime y. no lime" as recorded in crop yields. Del.

Limed y. not limed crops. Ala.

Yields of certain plants as affected by liming. N.Y. State.

Studies in lime requirements of various soil types found in the State. Del.

Composition and distribution of limestone in Arkansas. Ark.

A survey of sources of agricultural liming materials in New York. N.Y. State.

A field comparison of various forms of lime, also rate-of-liming experiments. Tenn.

Lime. (Cont.)

To compare the relative efficiency as soil amendments of burned lime, limestone, marl, gypsum, dolomite, and magnesite and of limestone ground to different degrees of fineness. N.Y. Cornell.

Methods of applying lime, quantity of application. Mass.

The use of lime.--To determine the amount and form of lime that will give the best results. (Starkville and Holly Springs Branch Station) Miss.

Calcium v. magnesium limestone. Md.

Decomposition of calcium and magnesium carbonates in soils under field conditions, including drainage investigations. Tenn.

Field test of the value of limestone of different degrees of fineness, as compared to equivalent amounts of burned lime, hydrated lime, and by-product lime. Penn.

An experiment for the purpose of determining the proper fineness of grinding limestone for agricultural purposes and the rates and methods of its application to an acid soil. Mo.

Lime studies on peat soils.--To determine the kind and amount of lime to use on peat soils. N.C.

Lime studies on muck soils.--To find the most economical kind and amount of carriers of lime to use on muck soils. N.C.

Lime studies.--The use of lime in a standard crop rotation for this region, different forms of lime, effects of the fineness of grinding on value of limestone. Va.

To determine the downward progress, if any, of lime through the soil as a top-dressing. Penn.

To make marl available for agricultural use. Mich.

Manure.

Use and value of manure. Oreg.

Rate of manuring. (Northeast Demonstration Farm) Minn.

Experiments with different quantities of barnyard manure. (Tribune Branch Station) Kans.

Manuring experiments- Lexington field. Ky.

Manure. (Cont.)

Manure as a fertilizer for major crops. (In cooperation with the Office of Western Irrigation Agriculture Investigations, U.S.D.A.). (Hermiston Branch Station) Oreg.

Manure economy tests. (Market Garden Field Station) Mass.

A study of the comparative returns from manure applied immediately prior to (a) the seeding of wheat; and (b) the seeding of cowpeas in a cowpea-wheat rotation. Tenn.

Experiments to determine the best place for the application of farmyard manure in a standard five-year crop rotation. Tenn.

Investigations relative to the nitrogen changes in farm manure. N.Y. State.

The decomposition and preservation of manure. N.Y. State.

Studies in housing live stock for efficient handling and preservation of manure. Oreg.

Effect of weathering and storage upon the composition of barnyard manure. Mo.

Nitrogen.

Nitrogenous fertilizer experiment.--To determine the relative value of various carriers of nitrogen. N.C.

The value of different carriers of plant food ingredients. Nitrate of soda and sulphate of ammonia with more and less lime; nitrate, sulphate, cyanamid, and manure for grass top-dressing, nitrate, blood, hoof meal, horn meal, star-fish, hen manure, tankage and acid fish in sunken pots with more and less lime, with and without cover crop. R.I.

Availability of nitrogenous fertilizer materials. N.J.

Comparison of nitrogenous fertilizers. Mass.

Nitrate investigations. Mont.

Test of different amounts of nitrate of soda. Mass.

Comparative tests of nitrogenous fertilizers at the Coast and Pee Dee Stations. S.C.

Nitrogen economy in cane soils. To determine the comparative utility of nitrate of soda, sulphate of ammonia and leguminous manure as sources of nitrogen for cane fertilization. P.R.

Phosphorus.

The use of gypsum, manure, rock phosphate, acid phosphate, sulphate of potash, and the last two in combination and the use of lime with all of the above combinations on alfalfa. (West Central Substation) Minn.

The use of acid phosphate. (West Central Substation) Minn.

A study of the use of a high grade acid phosphate. Iowa.

The use of acid phosphate in amounts varying from 0 to 200 lbs. per acre on a 2-year rotation of wheat and clover. (West Central Substation) Minn.

Phosphate fertilizer tests. (Northeast Demonstration Farm) Minn.

A study of upland soil.--Phosphate fertilizer test. (North Central Branch Station) Minn.

A field test of different carriers of phosphorus. Penn.

Comparative tests of phosphate fertilizers. S.C:

Sources of phosphorus experiment. (Holland Substation) Va.

The value of different carriers of plant-food ingredients.--Acid phosphate, flcats, double superphosphate, Thomas slag, bone, with more and less lime. R.I.

Relative value of different amounts of phosphoric acid on DeKalb soils. Penn.

Liming and fertilizer experiments, including a comparison of different phosphates. Tenn.

Determination of the relative values of different forms of phosphorus upon the soil at Columbia. To determine the availability, the value and the effect upon both soil and crop of the phosphorus as supplied in a number of phosphorus carriers. Mo.

The comparative values of different phosphates as determined by field experiments. Tenn.

Availability and utilization of phosphorus compounds for crop use, on the red soils of Oregon, what forms of phosphate fertilizer will give best results, what practices will make the insoluble phosphate fertilizers available to crop use, what practices will make phosphate compounds of these soils more available, what differences there may be in feeding power of crops for rather insoluble phosphates. Oreg.

Phosphorus. (Cont.)

Basic slag as a carrier of phosphates. To determine on soil that responds to phosphoric acid when nitrogen and potash are added if basic slag is an economical material to use. N.C.

Phosphate studies. To work out the relative efficiencies of acid phosphate, soft phosphate, rock phosphate, and basic slag on the different soil types of the State. (Willard, Swannanoa, Wadesboro, and Statesville Substations) N.C.

Relative availability of different natural phosphates, acid phosphates, and reverted phosphates. Ga.

An attempt to determine the reason for the superiority of limestone and acid phosphate over limestone and rock phosphate in crop production on certain types of soil. Ky.

A field study of rock phosphate and Covington loam to determine the relative value of this fertilizer when applied with manure or green manure at the rate of 500 lbs., 1,000 lbs., 1,500 lbs., and 2,000 lbs. per acre. Iowa.

A rock phosphate study on the field unit basis. Iowa.

Factors governing the availability of rock phosphate in acid soils. Ark.

Rock phosphate v. acid phosphate. Comparing different amounts of ground raw rock phosphate against a complete fertilizer with acid phosphate. (Statesville, Kingsboro, and Swannanoa Substations) N.C.

The fineness of subdivision of rock phosphate as a factor in its effectiveness in crop production. Ill.

Phosphate experiment.--Comparing the value of rock phosphate against acid phosphate on continuous corn and crimson clover. M.C.

Comparative solubility of phosphorus in different soils after treatment with rock and acid phosphate. Ill.

Phosphate experiments.--To compare the availability of the phosphorus in raw ground phosphate rock with acid phosphate, when used with green manures. Md.

Composting commercial organic ammoniates, ground raw phosphates, and rich soil as affecting the solubility of the phosphates and the loss of nitrogen from the ammoniates. Ga.

Composting floats to render the phosphoric acid more readily available. Va.

Sulphur oxidation as a means of rendering phosphates available. N.J.

The effect of farm manure on the availability of raw rock phosphate. N.Y. Cornell.

Phosphorus. (Cont.)

Composting raw phosphate rock and sulphur with different soils. Tex.

Residual value of excess phosphorus applications (North corn acre and old phosphate field). Mass.

Potash.

The value of different carriers of plant-food ingredients. Muriate of potash, sulphate of potash, kainit, magnesium-potassium sulphate; with their principal elements left out of the basal fertilizer; potassium chlorid and carbonate supplemented with sodium chlorid and carbonate with more and less lime to determine the specific effect of sodium salts on asparagus. R.I.

A study of the value of the various potash fertilization materials.-- To determine relative value of various domestic potash materials compared with standard German potash salts, such as muriate of potash, as sources of potash fertilization. Ind.

A study of the effect of trona potash on cotton and corn. S.C.

Availability of potash in greensand marl. N.J.

Effect of sulphate and muriate of potash on soils of fields A and B.-- To determine whether muriate exhausts the calcium content of the soil more completely than sulphate because of greater solubility of calcium chlorid. Mass.

Sulphur. (See also Botany- Plant nutrition.)

Function of sulphur as a plant food. Wash.

Function of sulphur in relation to soil. Oreg.

Effect of sulphur on soils and plant growth. Ohio.

The relation of sulphur to soil fertility and plant composition. Mainly with alfalfa and red clover. Oreg.

To determine the effect of sulphur on the yield of alfalfa. (Aberdeen Substation) Idaho.

Sulphur as a fertilizer for Wyoming soils. Wyo.

Miscellaneous.

Top-dressing experiments. (Staunton Substation) Va.

A study of upland soil.--Peat as a fertilizer. (North Central Branch Station) Minn.

Sodium chlorid experiment. N.J.

FIELD CROPS.

General.

Cooperative experiments with field crops. Iowa.

General field crop production experiments and tests. Ky.

Demonstration farms, to determine under local farm conditions the advantages of proper cropping, rotation, correct cultural methods and good seed. (Demonstration Farms) N.Dak.

Demonstration plats, including oats, vetch, alfalfa, red clover, crimson clover, burr clover, and alsike clover. La.

General agronomic, fertilizer, cultural, and variety tests of edible root crops. To determine the best combinations of fertilizers, the best cultural methods and the best varieties. Hawaii.

General agronomic, breeding, selection and variety tests of field and forage crops. To develop better strains. Comparative tests to indicate the most promising of the introduced and developed varieties. Hawaii.

High altitude crops. Colo.

Methods of harvesting test plats. To study the accuracy of records secured by harvesting a portion of a plat in comparison with the yields secured from the entire plat. Md.

A test of 20 different crops and crop combinations used as catch crops at last cultivations or after corn harvest. Ohio.

Cooperative variety trials of farm crops (at the substations). Minn.

Varieties of field crops suitable for the section. (Raymond Branch Station) Miss.

Field crops, general. (Cont.)

Variety studies for field crops for the Delta. (Delta Branch Station) Miss.

Variety studies of field crops suited to Coastal Plains soils. (South Mississippi Branch Station) Miss.

Cultural investigations with crops. (Upper Peninsular Substation) Mich.

Studies in crop cultural methods. To determine the best method, rate, and distance of planting for various important crops. Ind.

Cultural methods for field crops. (South Mississippi Branch Station) Miss.

Cultural tests for different field crops for the Delta. (Delta Branch Station) Miss.

Cultural methods for crops suitable for the section. (Raymond Branch Station) Miss.

Cultural experiments. To determine the effect of grain, live stock, and diversified systems of farming on the continuous cropping of grain sorghums, cotton, and oats. Okla.

Study of fertilizer effects on crop yields. Del.

Fertilizer tests for field crops. (South Mississippi Branch Station) Miss.

Fertilizer requirements of crops suited to the section. (Raymond Branch Station) Miss.

Alfalfa.

Alfalfa experiments. (Staunton Station) Va.

Alfalfa experiments- adaptability. Va.

Alfalfa production: Varieties, breeding, and harvesting. Ark.

Alfalfa for West Virginia. W.Va.

Alfalfa breeding. Colo., La.

A study of the effect of inbreeding in smooth brome grass (Bromus inermis) and alfalfa (Medicago sativa). N.Dak.

The breeding and testing of pedigreed strains and types of alfalfa. (West Central Substation) Minn.

Alfalfa. (Cont.)

To produce improved alfalfa strains of uniform habit. Minn.

Selection and propagation of individual alfalfa plants resistant to Pseudopeziz medicaginis. Ohio.

Individual plant records to obtain superior alfalfa plants to become mothers of plant raising in a new nursery. Mich.

Plant row testing of alfalfa. Mich.

Crossing alfalfa to combine the characters of both parents and offspring. Mich.

Alfalfa: Segregation from crossing to obtain better combinations of characteristics. Mich.

Practical alfalfa breeding. To secure a variety at least as hardy as the Grimm variety which can be easily distinguished from all other varieties. N.Dak.

Inheritance in hardiness of alfalfa.--To obtain data as to the genetics of hardiness in alfalfa and thereby to lay a foundation for future practical breeding operations. N.Dak.

Development of strains of alfalfa and sweet clover with a minimum per cent of hard seeds. Wyo.

Breeding alfalfa with reference to the extreme sub-tropical conditions of Arizona. Ariz.

Improvement of alfalfa by selection. Wyo.

Alfalfa hardiness. Mich.

An investigation of the differences in root habits of species of alfalfa which have different degrees of hardiness. N.Y. Cornell.

Alfalfa variety testing. Mich.

Alfalfa variety tests. (Starkville and Holly Springs Branch Stations) Miss.

Variety tests of alfalfa. N.Y. Cornell.(Lightfoot Station) Va.

Varietal test of alfalfa. (Union Branch Station) Oreg.

Variety tests of alfalfa. (In cooperation with the office of Western Irrigation Agriculture Investigations, U.S.D.A.). (Hermiston Branch Station) Oreg.

Alfalfa. (Cont.)

A test of the different species and varieties of alfalfa. Penn.

Alfalfa variety tests.--To find hardy alfalfas for pasture and hay. Alaska.

Alfalfa variety test.--To compare some of the more common varieties of alfalfa now found on the market with native-grown alfalfa and to ascertain if any of these much-talked-of strains are better suited to the irrigated valleys than those now being grown. N. Mex.

A comparison of Grimm and Kansas Common alfalfa for yield and hardiness. Ohio.

Alfalfa test to determine yield, adaptability, winter hardiness of Grimm, Baltic, Cossack, Common, Turkestan, Peruvian, etc., from many different sources. Mich.

Alfalfa strain tests. N.J.

Alfalfa and bur clover variety tests. Ala.

Alfalfa tests.--Varieties and methods of seeding. Mont.

Culture experiments with alfalfa. (Lightfoot Station) Va.

Cultural tests with alfalfa. (Appomattox Station) Va.

Studies of behavior of alfalfa. Culture methods for alfalfa when used for (1) pasture; (2) hay production. Calif.

Different methods of cultivation and date of seeding of alfalfa. Also variety tests. Iowa.

Cultural trials with alfalfa: (a) Manurial requirements; (b) lime; (c) methods of seeding; (d) time of seeding. Conn. Storrs.

Cultural experiments with alfalfa (including fertilizer tests). Mo.

To secure the best method of growing and handling and especially the effect of drainage on the life of alfalfa; secondarily to determine the effect on yield of corn following the crop. (Sugar Experiment Station) La.

Factors influencing the securing of a good stand of alfalfa; effect of late and frequent cuttings; conditions causing winter-killing; comparison of hardiness of various varieties and strains; seed production; and factors causing yellowing of alfalfa. Wis.

Winter y. spring seeding of alfalfa, sweet clover, and red clover. Ind.

Fertilizers for alfalfa. (Holly Springs Branch Station) Miss.

Alfalfa. (Cont.)

Fertilizer experiments with alfalfa. (Lightfoot Station) Va.

To determine the advisability of manuring upland alfalfa. Okla.

Effect of more common fertilizers on yield and of inoculation by pure cultures on alfalfa under irrigation. N. Mex.

Sulphur fertilizer for alfalfa. Miss.

To determine the effect of sulphur on the yield of alfalfa. (Aberdeen Substation) Idaho.

Inoculation and liming for alfalfa and sweet clover. Minn.

Quantity-of-water test with alfalfa. (Garden City Branch Station) Kans.

Winter irrigation of alfalfa. (Garden City Branch Station) Kans.

Duty and effect of duty of water on alfalfa. N. Mex.

Irrigation of alfalfa and development of orchard and vineyard tracts for later experimental purposes. Calif.

Vegetation house studies with alfalfa to be used as a check on the irrigation work under field conditions. Utah.

Alfalfa seed growing to establish varieties of hardy alfalfas by the use of Alaska-grown seed. Alaska.

Alfalfa seed increases. Mich.

Physiological investigations of conditions that control seed setting in alfalfa. Iowa.

Hard seed of alfalfa. (a) Field test as to viability; (b) laboratory germination tests of hard seeds. Colo.

Source of alfalfa seed with reference to hardiness. Wyo.

Problems in connection with the alfalfa seed industry. Mich.

Development of seed coat in alfalfa and clover. Iowa.

Studies of the effects of cutting alfalfa hay at different stages of growth. Kans.

Feeding alfalfa hay cut at different stages. Kans.

The effect of pasturing hogs upon the growth and stand of alfalfa. (West Central Substation) Minn.

Alfalfa. (Cont.)

Comparison of first, second, and third cuttings of irrigated alfalfa hay with each other and with corresponding cuttings of dry alfalfa as feeds for milk production. Wash.

Comparison of alfalfa and sweet clover and cowpeas and soy beans as hay crops. (Bowling Green Station) Va.

Disease resistance in alfalfa. Mich.

Relation of soil basicity to the growth of alfalfa. N.Y. Cornell.

Alfalfa with a nurse crop. Ala.

Barley.

Breeding work with barley. N.Y. Cornell, S.C.

Barley breeding to develop earlier and better varieties for growing in Alaska. Alaska.

Barley, rye, and oat breeding. Wis.

Barley segregation to isolate individuals with desirable characters that will breed true. Mich.

Barley beds and centgeners, to select better individuals and to reselect within the best progenies until they breed true. Mich.

Barley plant rows to compare the progenies on the yield in quality in order to locate the best strains. Mich.

Barley increases to obtain a sufficient quantity of seed for distribution. Mich.

Barley improvement. Idaho.

Varietal test with barley. (Colby Branch Station) Kans.

Variety tests with barley. S.C.

Variety testing and head selection of barley for yield and early maturity. Wyo.

Variety tests with barley, in rod rows only. La.

Variety testing, breeding, acclimatization, and cultural studies of small grains. To improve the quality and yield of small grains, including winter wheat, oats, spring wheat, rye, winter barley, and winter emmer. Nebr.

Barley. (Cont.)

Grain growing on field scale. To test barley, oats, wheat (spring and winter), winter rye and buckwheat on a field scale. Including also variety tests. Alaska.

Varietal trials of winter and spring grains, including wheat, oats, and barley. (In cooperation with the Office of Cereal Investigations, U.S.D.A.). Oreg.

Variety tests with barley, oats, and wheat. (Sandpoint Substation) Idaho, (Union Branch Station) Oreg.

Varietal trials, including wheat, barley, oats, field peas, corn, and potatoes. (In cooperation with the Office of Cereal Investigations, and Forage Crop Investigations, U.S.D.A.). (Moro Branch Station) Oreg.

Variety tests with wheat, oats, and barley. (Aberdeen Substation) Idaho.

Variety test of winter cereals, wheat, oats, rye, and barley. Ga.

Variety tests of wheat, spring and winter barley, oats, and rye. (North Central Branch Station) Minn.

Variety test with wheat, oats, barley, and miscellaneous grains under dry land and irrigation. (High Altitude Station) Idaho.

To test new and standard varieties of spring wheat, oats, barley, and winter rye, as to yielding capacity resistance to disease and trade value as measured by milling and baking tests. N.Dak.

Barley variety testing, to obtain the highest-producing strains and to compare the commercial varieties. Mich.

Barley variety tests, to learn which varieties will mature and prove useful. Alaska.

Barley variety tests and cultural experiments. Va.

To determine the adaptation of different standard varieties of spring barley to the various soil types of the State. Mo.

Varietal and cultural tests and breeding work with wheat, oats, barley, corn, and grain sorghums. (In cooperation with the Office of Cereal Investigations, U.S.D.A.). (Ft. Hays Branch Station) Kans.

Variety trials and cultural experiments with small grains, wheat, barley, and oats. Calif.

Date of seeding winter wheat, winter rye, and barley. (Northwest Experiment Farm) Minn.

Barley. (Cont.)

Rates of seeding spring grain, wheat, oats, and barley. Mont.

Dates of seeding spring grain, wheat, oats, and barley. Mont.

Date-of-planting experiments with barley, cats, and wheat. Tenn.

Rate of seeding wheat, oats, barley, and corn. (Northwest Experiment Farm) Minn.

Continuous cropping plats of oats, barley, wheat.--Two tons manure each per acre. (West Central Substation) Minn.

Production of improved barley sorts. (In cooperation with the U. S. Department of Agriculture). Minn.

Barley production: Varieties, breeding, and cultural methods. Ark.

Barley production and storage investigations. Iowa.

Investigation of occurrence of barley in oats. Iowa.

Effect of stage of maturity at harvest upon the germination power of barley, wheat, and cats seed. Wyo.

Study of the relation of the concentration of nutrient solutions to the growth of the barley plant in sand and water cultures. The relation of solution to absorption and forms of combination of important elements. Calif.

Breeding field crops, general.

Plant breeding: To isolate, introduce, or produce profitable strains of cotton, corn, oats, and other crops adapted to the Delta. (Delta Branch Station) Miss.

To develop strains of the respective crops best suited for Oklahoma conditions with reference to the purpose for which they are grown. Okla.

Improvement of certain crops by selection. Tenn.

Development of disease-free strains of farm crops. (Upper Peninsular Substation) Mich.

Crop improvement by mass and individual plant selection, including small grains, corn, grain sorghums, and peanuts. Tex.

Crop improvement by seed selection and breeding. To improve the seed of crops grown at the central and branch stations. N.C.

Breeding field crops, general.

Seed crop improvement. Colo.

Breeding experiments with wheat, oats, corn, and sorghums. Kans.

A comparison between hill method and row method for determining relative yields of selected strains of plants. W.Va.

To determine the better methods in technique in plant breeding and farm crops work. (In cooperation with the U.S. Department of Agriculture). Minn.

Brome grass.

A study of the effect of inbreeding in smooth brome grass (Bromus inermis) and alfalfa (Medicago sativa). N.Dak.

Brome grass: Isolation and fertilization of strains of brome grass. To obtain self-fertilized seed of improved strains for increase. N.Dak.

Variation studies with brome grass. To secure data upon the variability and amount of correlation existing in the species in different geographic strains, and between sibs and clones. N.Dak.

Yield studies of different clone types of brome grass. To secure data to aid in future practical breeding and selecting. N.Dak.

To determine nutrient value and ash constituents of brome grass at different stages of growth. N.Dak.

Broom corn.

Broom corn: To compare different types for the production of brush and to determine the best cultural methods for the crop under irrigation. N.Mex.

Buckwheat.

Buckwheat investigations. W.Va.

Breeding to secure improved strains of buckwheat. (Aroostook Farm) Me.

To test barley, oats, wheat (spring and winter), winter rye, and buckwheat on a field scale. Including also variety tests. Alaska.

Variety tests and methods of seeding buckwheat. W.Va.

Studies in crop cultural methods.--The best time to sow buckwheat. Ind.

Buckwheat. (Cont.)

Culture experiments with buckwheat. Rate and method of seeding. (Aroostook Farm) Me.

Cane (sugar).

Cane breeding experiments to increase the quantity of sugar per acre produced in the Island. Virgin Islands.

The production of improved varieties of sugar cane, particularly with respect to disease resistance. P.R.

Cane variety experiments. To increase the quantity of sugar per acre capable of being produced in the Island. Virgin Islands.

To secure a variety of sugar cane that will give a more profitable yield of sugar per acre. (Sugar Experiment Station) La.

Fertilizer experiments with sugar cane. To determine the commercial effect of added plant food. (Sugar Experiment Station) La.

Determination of the effect of varying amounts and varying sources of potash on sugar content and growth of sugar cane. Fla.

Sugar cane: Complete fertilizer experiments. Ala.

Japanese sugar cane y.sorghum for forage and for sirup. Ala.

Winter cover crops on fall planted cane. To utilize the fall, winter, and early spring months to grow an extra leguminous crop in the regular rotation. (Sugar Experiment Station) La.

Cereals, general. (See also specific cereals.)

Cereal breeding. Utah.

Inheritance study of cereals. Wash.

Correlation of characters in grain. Colo.

Investigations in cereal breeding. (West Central Substation) Minn.

Hybridization of cereals. S.Dak.

Cereal breeding and selection in the nursery. (Aberdeen Substation) Idaho.

Pedigreed grain development. (Upper Peninsular Substation) Mich.

Selection and breeding with wheat, barley, and rye. (Union Branch Station) Oreg.

Cereals, general. (Cont.)

Cereal investigations: Selection, propagation, and testing of pure lines of promise. Va.

Cereal disease nursery.--Smut resistance. (Aberdeen Substation) Idaho.

Cereal investigations. (In cooperation with the Offices of Dry Land Agriculture and Cereal Investigations, U.S.D.A.). (Dickinson Substation) N.Dak.

Miscellaneous grain investigations, including rye and emmer. (In cooperation with the substations) Idaho.

Cooperative tests of small grains with county agents through an agreement with the extension division to assist in the standardization of small grain varieties. Idaho.

Grain varieties. Utah.

Variety test of grains. (Northeast Demonstration Farm) Minn., S.Dak.

Variety test with small grains. (Tribune Branch Station) Kans., Miss.

Varietal trials of winter and spring grains, including wheat, oats, and barley. (In cooperation with the Office of Cereal Investigations, U.S.D.A.). Oreg.

Variety tests with wheat, oats, barley, and miscellaneous grains under dry land and irrigation. (High Altitude Substation) Idaho.

Varietal tests of sorghum, corn, and small grains. (Garden City Branch Station) Kans.

Variety testing, breeding, acclimatization, and cultural studies of small grains. To improve the quality and yield of small grains, including winter wheat, oats, spring wheat, rye, winter barley, and winter emmer. Nebr.

To learn the value of different grain mixtures; variety trials of grains; to learn the reliability of experimental methods. Minn.

Variety tests of grain and forage. Mont.

Grain investigations. To test many varieties of grain, especially the hybrids produced at Rampart, to ascertain adaptability to the Matanuska Valley. Alaska.

Variety test of cereals in pure line plats. Selection of varieties and increase of pure line seed of best varieties. N.Mex.

Cereals, general. (Cont.)

- Commercial grain testing to determine adapted varieties. (Upper Peninsular Substation) Mich.
- Variety test of cereals for the production of hay. (High Altitude Substation) Idaho.
- Cereal varietal and cultural investigations. Wash.
- Variety and cultural tests of the cereals and forage crop at thirteen points in the State. Ohio.
- Varietal and cultural tests with winter and spring grains. Ariz.
- Variety trials and cultural experiments with small grains, with wheat, barley, and oats. Calif.
- A varietal and cultural test of grain, grasses, and miscellaneous crops. Ariz.
- Nursery trials with wheat and rye selections and wheat-rye hybrids. (In cooperation with the Office of Cereal Investigations, U.S.D.A.). Oreg.
- Top-dressing winter grains. Ga.
- Comparison of different grades of seed wheat for planting; methods of preparing seed bed and rate of seeding of oats; time and rate of seeding of winter wheat. Minn.
- Dates of seeding spring grain, wheat, oats, and barley. Mont.
- Dates and rates of seeding small grains. (Staunton Station) Va.
- Time and rate of sowing winter cereals. Ga.
- Rate and time of seeding small grains. Wyo.
- Rates of seeding spring grain, wheat, oats, and barley. Mont.
- A study of upland soil. Rolling seed bed for grain. (North Central Branch Station) Minn.
- Comparative yield of cereal crops cut for hay and for grain and straw. Ohio.
- Small grain, especially as a nurse crop with alfalfa. (Scottsbluff Substation) Nebr.
- Relation of soil moisture, structural development, and yield of small grain. Colo.
- The relation of seed treatment to the physiology of grains. Oreg.

Cereals, general. (Cont.)

A study of the causes of lodging in cereal crops and cultural practices related thereto. Ohio.

Nature and prevention of formaldehyde injury to cereals. Mich.

Clovers, etc. (See also Legumes.)

Albino clover breeding. Mich.

The production of an improved red clover for northern Minnesota. (North Central Branch Station) Minn.

Clover: Plant selection of individuals resistant to anthracnose; a study of the progeny of these plants as to resistance. Ohio.

Clover investigations: To study the various factors that affect the production of clover under the conditions of this part of the country, and especially to determine the reasons for clover failures, and to develop practical methods of overcoming them. Ind.

Clover and grass selections. W.Va.

Selection work with burr clover to develop a hardy strain adapted to the locality. Miss.

Clover production: Varieties, breeding, and harvesting. Ark.

Clover variety tests. (In cooperation with the U.S. Department of Agriculture). Wis.

Variety tests of clover. N.Y. Cornell. (North Central Branch Station) Minn.

Variety tests with bur clover. Miss.

Bur clover and alfalfa variety tests. Ala.

Varietal trials with clover. (In cooperation with the Office of Forage Crops Investigations, U.S.D.A.). Oreg.

Testing varieties of grasses and clovers both for forage and for hay as to their adaptability to local climate and soil conditions. Miss.

Crimson clover test to obtain hardy strains. Mich.

Testing for yield, adaptability, and winter hardiness of a large number of varieties of red clover. Mich.

Clovers, etc. (Cont.)

Grasses and clovers for forage and permanent pasture, including Bermuda grass, bur and crimson clover. (Holly Springs Branch Station) Miss.

Testing clovers for yields of hay. Va.

Yield tests of various clover and grass mixtures. N.Y. Cornell.

The effect of straw mulch applied to wheat upon the yield of wheat and the following clover. Ohio.

Clover seeding experiments. Ky.

A comparison of methods and times of seeding clover. Ohio.

Studies in crop cultural methods. Winter v. spring seeding of red clover, alfalfa, and sweet clover. Ind.

Red, mammoth, alsike, and white clover investigations. Iowa.

Relative production of red clover, alsike clover, yellow and white sweet clover for hay and pasture. (Union Branch Station) Oreg.

Red clover pollination, fertilization, and variation. Iowa.

Trials to determine the best method of securing stands of red clover. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.). Oreg.

The difference between mammoth red clover and common red clover. N.J.

The impairment of red clover seedings. Ohio.

Development of seed coat in alfalfa and clover. Iowa.

Clover, species of. Ala.

Clover, sweet.

Sweet clover investigations. Penn.

White biennial sweet clover test. Mich.

Sweet clover investigations: To study the adaptability of different regional strains of white and yellow blossomed sweet clover to North Dakota conditions; to study the influence of nurse crops upon forage and seed production and to determine the best rates and dates of seeding; to compare differences in different strains of yellow sweet clover; to compare yellow and white sweet clover as to value for hay purposes; to study the process of silage production from sweet clover. N.Dak.

Clover, sweet. (Cont.)

Strain tests with white sweet clover. Iowa.

Development of strains of sweet clover and alfalfa with a minimum per cent of hard seeds. Wyo.

Hubam clover breeding. Iowa.

Annual white sweet clover (Hubam), effect of time, rate and method of seeding upon yield of seed and hay. Ohio.

Hubam clover production. Iowa.

Hubam clover. Forage test. Mich.

Hubam clover bed to secure a strain that will produce seed and live over winter. Mich.

Studies of Canadian Albotrea (biennial-yellow-blossomed sweet clover). Wis.

Varietal trials of sweet clover. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.). Oreg.

A comparison of the several species and varieties of clover, as to yield. Ohio.

Cultural test with sweet clover. Idaho.

Sweet clover investigations. To determine both the time of seeding and method of preparing the seed bed in growing sweet clover. Okla.

Biennial white sweet clover. Rate of seeding. Ohio.

Winter v. spring seeding of sweet clover, alfalfa, and red clover. Ind.

Inoculation and liming for alfalfa and sweet clover. Minn.

Value of sweet clover as forage crop for Wisconsin. Wis.

Sweet clover as a hay and seed crop. Ill.

Comparison of alfalfa and sweet clover and cowpeas and soy beans as hay crops. (Bowling Green Station) Va.

Relative production of red clover, alsike clover, yellow and white sweet clover for hay and pasture. (Union Branch Station) Oreg.

Chemical investigations of sweet clover. Iowa.

Corn.

Genetic studies.

Genetic studies of corn. N.Y. Cornell.

Mendelian studies with corn. N.Y. Cornell.

Studies of inheritance in corn, particularly as applied to inbreeding. Wis.

A study of inheritance of certain characters of corn. Minn.

The inheritance of prominent ear and stalk characters of corn and their relation to yield, namely: (a) Shape of ear; (b) length of ear; (c) number of rows per ear; (d) filling of tip; (e) indentation of kernel; (f) height of ear in stalk; (g) height of plant; (h) proportion of grain to cob. Ohio.

Inheritance of barrenness in corn. S.C.

Genetic studies in corn, with special reference to linkage. N.Y. Cornell.

Corn segregation for the purpose of fixation of types. Mich.

Breeding experiments.

Improvement of farm crops by breeding and selection. Corn breeding. Ind.

Corn breeding. Ala., Ark., Iowa, N.J., Penn., S.C.

Comparison of various methods of corn breeding. Also comparison of results of collecting for yield alone with selection for yield and type. Minn.

Corn investigations: To establish a system of corn breeding to produce an improved variety for this section of the State. (Caldwell Substation) Idaho.

The effect upon yield of crossing individual ears of corn of same variety. Ohio.

Corn: The effect upon yield of crossing distinct varieties. Ohio.

Corn: F_1 generation yield studies: To find to what extent, if any, the F_1 generation will outyield and mature in advance of the respective parents and to fix upon those hybrids showing the maximum amount of such changes. N.Dak.

Commercial value of first generation corn crosses. Minn.

Breeding experiments. (Cont.)

Degree of close breeding in maize. A study of the degree to which close breeding may be practiced with safety in fixing selected types. Nebr.

Crossing varieties of corn for increased yield in the F_1 generation. Ga.

Corn, multiplication of bred-up strains. Ala.

Corn selfing. Mich.

Production of high-protein corn by self-fertilization and crossing. Minn.

Selfing corn plants of Northwestern Dent and other varieties. To isolate strains of pronounced type to serve as the basis of future practical breeding. N.Dak.

Self-fertilizing corn for the production of homozygous strains. Ga.

Corn breeding: To determine the characteristics of parent strains that are essential to the production of high-yielding hybrid progenies. Miss.

Corn crossing for better combinations of character. Mich.

Breeding corn for yield. Ky.

Breeding a high yielding, heat resistant field corn. Ariz.

Breeding for disease resistance in corn. Ill.

Studies on development of cold resistant corn. Wis.

Breeding of superior flint corn seed.--Distinct strains of flint corn crossed for hybrid seed. (Highmoor Farm) Me.

To secure a white flint corn that is equal or superior to yellow creole. (Sugar Experiment Station) La.

Breeding corn for grain and silage. N.Y. Cornell.

Selection and breeding of corn for eastern Idaho. (Aberdeen Substation). Idaho.

Corn breeding: Development of early-maturing varieties for northern Wisconsin. Wis.

Corn breeding and improvement. (Aberdeen and Caldwell Substations) Idaho.

To obtain higher-yielding strains of native corn. P.R.

Corn. Selection and breeding. Improving the Calhoun Red Cob. La.

Corn. (Cont.)

Practical corn breeding, to produce a productive variety as early as Gehu, with ears sufficiently high to harvest easily and to produce an early variety of popcorn of superior value. N.Dak.

Improvement of corn for use on the Island. Virgin Islands.

Crossing improved corn with Hopi maize. To produce a variety of acclimatized corn which can be planted deep in the moist subsoil and germinate successfully. Virgin Islands.

Corn improvement: To procure an earlier maturing, lower growing strain of corn for Guam; to increase the yield and quality, if possible, along with above improvement, of the corn grown here. Guam.

Corn improvement: To increase the yield of corn on the Island. Virgin Islands.

The raising of a strain of corn, which is an improvement on yield, disease resistance, uniformity of maturing. P.R.

Improvement of dent, flint, and sweet corn in yield and feeding value, by breeding work in three different localities. Conn. State.

Corn ear-to-row tests. (Northeast Demonstration Farm) Minn., W. Va.

Corn ear-to-row breeding experiments. Ala.

Intensive field selection of corn by the ear-row method. Mich.

Corn selection and culture. Selection from mass: Ear-row selection: Selection from area where backward or unproductive stalks are detasseled. R.I.

Corn increase plats to increase remnants of ears which breed best in ear-row plats. Mich.

Testing of individual ears in ear-to-plat tests. Ohio.

Varietal experiments.

Corn variety tests. Ala., Ark., Del., Ga., (Colby Branch Station) Kans., Ky., (Starkville and Holly Springs Branch Stations) Miss., N.Y. Cornell, S.C., (Substations) Va., W.Va.

Variety tests of field corn and velvet beans. Fla.

Varietal tests of sorghum, corn, and small grains. (Garden City Branch Station) Kans.

Corn. (Cont.)

Varietal trials, including wheat, barley, oats, field peas, corn, and potatoes. (In cooperation with the Office of Cereal Investigations and Forage Crop Investigations, U.S.D.A.). (Moro Branch Station) Oreg.

Variety trials with various farm crops, such as corn, wheat, oats, soy beans, cotton, etc. Tenn.

Variety tests of corn for grain and ensilage. Conn. Storrs.

Corn investigations. To determine the yielding capacity of introduced varieties as compared with those locally grown for the production of silage. (Caldwell Substation) Idaho.

Variety tests of corn for the production of silage. (Aberdeen Substation) Idaho.

Variety tests with corn for grain and silage, spacing tests on grain varieties. (North Louisiana Experiment Station) La.

Variety test with sweet and ensilage corn. Me.

Silage corn variety tests. Miss.

Ensilage corn variety tests. To determine the relative yield, maturity, and adaptability of the varieties in the different sections of the State and to compare them with other local or favorite varieties. N.H.

A test of silage varieties of corn. Ohio.

Corn variety trials for silage. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.). Oreg.

Silage corn varieties and legumes to climb on them. R.I.

Observational corn variety test. Mich.

A comparison of about 14 varieties of corn as to yield, weight of grain, resistance to disease, etc., also a late planted variety test to determine which varieties of corn are most productive for late planting. Ala.

Variety tests with corn. To secure the variety which is best adapted to local conditions. (Sugar Experiment Station) La.

Corn variety testing to compare the yielding power of different varieties and strains. Mich.

Corn variety test to compare the yield and adaptability. Mich.

Corn. (Cont.)

- A study of the adaptations of the important varieties of corn for Missouri conditions. Mo.
- A test of varieties of corn for comparative yields. (Valentine Substation) Nebr.
- Varietal corn test.--To compare types and varieties of corn suited to North Dakota as to their yields of dry matter and feeding value. N.Dak.
- A test of varieties commonly grown in the State and of pedigreed strains of corn produced by the station. Ohio.
- To determine yields of different varieties of corn as shown by competitive tests. Okla.
- Work with flint corn. Variety tests, selection and breeding to secure new and improved strains. (Highmoor Farm) Me.
- A study of the varieties and methods of culture of Indian corn and the various sorghums. Ariz.
- Variety and cultural tests with corn. Va.

Tillage experiments.

- Corn production: Cultural methods. Ark.
- Cultivation experiments with corn. Ky.
- Corn cultural tests. S.C.
- Cultural methods for corn. To test methods of preparing the ground, applying the water, and cultivating the crop. N.Mex.
- Culture methods for corn. Spacing, also scraping as compared with cultivation at different depths, no cultivation as compared with different number of cultivations and a comparison of planting on a well-prepared seed-bed and on rough ridge. (Starkville, Holly Springs and Delta Branch Stations) Miss.
- Effect of different methods of cultivation of corn on yield. La.
- Cultural experiments with corn, including the rate of planting, methods of preparing sod land and stubble land, depth of plowing, and subsoiling, methods of cultivation and planting. Mo.
- Effect of frequency of cultivation upon the yield of corn. Ill.

Corn. (Cont.)

Soil preparation experiments for corn. Tenn.

Tillage experiments with both corn and cotton. To determine the best depth of plowing and cultivation. Tenn.

Cultural tests of corn for silage production. Idaho.

The effect of biennial subsoiling on corn, cotton, and cowpeas. Ala.

Rate and date of seeding.

Date of planting corn for silage. Early v. late. (In cooperation with the Bureau of Plant Industry, U.S.D.A.). Conn. Storrs.

Date-of-planting trials with corn. Tenn.

The relation of date of planting to yield of corn. Ohio.

Phenological observations as related to time of planting corn. To determine the relation between certain common periodical annual events, such as the budding and flowering of trees to the best time to plant corn. Ind.

Effect of early and late planting on maturity. R.I.

Corn. Effect of time of planting on yield. La.

Early planting of ensilage corn. N.H.

Rate of seeding wheat, oats, barley, and corn. (Northwest Experiment Farm) Minn.

Rate-of-planting experiments with both corn and soy beans. Tenn.

Rate-of-planting experiments with both corn and cotton. Tenn.

Spacing test with corn.. (Tribune Branch Station) Kans.

Corn spacing experiments. Miss.

A comparison of distance apart to plant corn, corn and soy beans, and sunflowers. Minn.

Effect of spacing corn different distances in 4-ft. rows. Ga.

The relation of stand of plants to yield, with corn. Ohio.

Corn and velvet beans- different methods of planting. La.

Corn. (Cont.)

Fertilizer experiments.

Fertilizer experiments with corn. (Holland, Martinsville, and Staunton Substations) Va.

Fertilizer studies for corn. (Holly Springs Branch Station) Miss.

Fertilizer experiments with corn. (a) To secure proper ration of nitrogen and phosphoric acid for corn; (b) to determine maximum profitable application of fertilizer on corn. (Sugar Experiment Station) La.

Complete fertilizer experiments with corn. Ala.

The effect of different amounts and different methods of applying commercial fertilizers to the corn crop. To determine the effect of adding various amounts of commercial fertilizer to corn both in the hill or drill and over the entire soil surface upon the resulting crop. Mo.

Corn fertilizer experiment, being a study of the relative value of nitrate of soda and acid phosphate in the continuous growing of corn. N. J.

Study of fertilizer formulas and crop yields in wheat and corn. Del.

Rotation and fertilizer experiments with corn, sweet potatoes, and peanuts. To determine the production of corn, sweet potatoes, and peanuts in rotation and using various forms of commercial fertilizer and lime. Fla.

Various forms of nitrogen for corn. Also different times of application of nitrate of soda to corn. Miss.

Corn: Experiments with sources of nitrogen. Ala.

Corn: Time of applying nitrate of soda. Ala.

To test the time when nitrate of soda should be applied to corn and cotton to secure the greatest benefits. Ala.

Time of application experiments with nitrate of soda for corn and cotton. Tenn.

Corn, sources of phosphate. Ala.

Comparing acid phosphate, basic slag, and rock phosphate as sources of phosphorus for corn and cotton. Ala.

A comparison of a mixture of cottonseed meal and acid phosphate applied at different times of growth, with and without organic matter, to continuous growing of corn. La.

Corn. (Cont.)

Investigations of the availability of soil potash for corn. Conn. Storrs.

Tests of potash from "nitrapo" and other sources on corn and sorghum. Ala.

Corn; Lime experiments. Ala.

Topdressing corn. Ga.

Method of planting and fertilizing corn. Ga.

Silage corn.

Corn for silage. (Union Branch Station) Oreg.

A comparison of sunflowers and corn for yield of silage. Ohio.

A comparative test of growing corn and sunflowers for silage. Penn.

A test of the practicability of growing soy beans with corn for ensilage. Penn.

A comparison of yield of the ranker growing varieties of sorghum with standard varieties of corn for silage. Ala.

A comparison of early, medium, and late maturing types of corn for silage on the basis of milk produced per acre. Conn. Storrs.

Climbing beans in corn for silage. Conn. Storrs.

Miscellaneous.

Continual growth of field corn: With legumes as cover crop. R.I.

Continual growth of field corn: With rye cover crop. R.I.

Continual growth of field corn: With straw plowed in. R.I.

Continual growth of field corn: Without cover crop or organic matter supplied artificially. No manure used. Phosphorus and potassium alike. Twenty lbs. nitrogen applied to one section and 60 lbs. to other sections. R.I.

Corn production and storage investigations. Iowa.

Corn production, selection, breeding, and variety adaptation. Md.

Varietal and cultural tests and breeding work with wheat, oats, barley, corn, and grain sorghums. (In cooperation with the Office of Cereal Investigations, U.S.D.A.). (Fort Hays Branch Station) Kans.

Corn. (Cont.)

Corn multiplication plats to raise seed for general distribution. Mich.

Experiments in the associated growth of corn and cowpeas. Me.

Growing corn and soy beans together. Ky.

Investigation of associated growth of corn and soy beans. Wis.

Effect of planting corn with different legumes. Ga.

To secure comparative yields of corn grown after crops of cowpeas, soy bean and velvet bean vines have been plowed under. (Sugar Experiment Station) La.

Effect of companion cropping of corn with legumes. S.C.

Residual effects of other crops [on the corn crop]. (Scottsbluff Substation) Nebr.

Corn on alfalfa sod. N.J.

Analysis and composition of corn pollen. N.Y. State.

Corn: A study of pollen distribution as affected by (a) wind direction and velocity; (b) conditions of atmosphere; and (c) distance from field. Ohio.

Corn kernel character study. Mich.

The effect of selection of certain chemical and physical characters of the corn plant. Ill.

Tests (chemical) of oats, corn, and rye, from farm crops section. Minn.

Chemical factors concerned in the formation of pigments in certain varieties of corn. Nebr.

Analysis (chemical) of corn for selection of high and low protein strains. Minn.

The development of the various parts of the maize plant as influenced by variation in soil moisture, soil composition and texture and the supply of plant food. Mo.

Changes taking place in corn and corn meal when stored under different conditions. Ky.

Corn: The relation of the environment of the mother plant to the yielding ability of the progeny. Ohio.

Corn. (Cont.)

The relation of the time of harvest of corn to (a) yield of shelled corn and fodder; (b) germination and yielding capacity of seed; and (c) amount of infection of the seed with pathogenic organisms. Ohio.

Corn. The relation of weak and strong germination to (a) yield; (b) stand of plants; (c) infection with pathogenic organisms. Ohio.

Principles governing growth and maturity in corn. Va.

Corn: Effect of strength of germination on yield. La.

Suckering of corn. To determine the effect upon productiveness, type, sucker-producing tendencies, etc., of continuously selected seed from suckering stalks. Ind.

A study regarding the extent to which the physical characters in corn are a guide in selecting disease-free seed. Ill.

Best laboratory medium for the germination of corn. N.J.

The economic value of the germination test of seed corn. Ohio.

A comparison of the most important grain sorghums with corn for grain and forage production. Mo.

Corn investigations. To determine adaptability of Indian corn for grain and forage production and to determine the yield of dry matter per acre at different stages in the development. N.Dak.

Effect of submerging upon the young corn plant. Iowa.

Frost resistance of individual plants. Mich.

Method of conducting corn experiments. Ga.

Cost of production. (See Rural economics- Cost of production.)

Cotton.

Fundamental study of inheritance in cotton. Tex.

The genotypic constitution of certain varieties of cotton. To study the mode of inheritance and association of economic qualities in cotton. (U.S. Department of Agriculture,) N.C.

A study of the inheritance of fruit characters in cotton. Ark.

Cotton. (Cont.)

Cotton production: Breeding and selection. Ark.

Selection and breeding of cotton. La.

Cotton breeding. To make selections within the Pima variety in order to improve this in earliness, percentage of lint, yield, and form of plant. Also crossings with Pima and various short-staple varieties. Ariz.

Breeding experiments with cotton. To include relation between size of seed and viability, productiveness, degree of relationship between the parents of the seed, etc. Ala.

Breeding experiments with cotton. Ga.

Breeding work with cotton. (Cleveland and Cook cotton used). S.C.

Cotton breeding experiments, to improve the quality, quantity, and disease resistance of the locally-grown Sea Island cotton. Virgin Islands.

Cotton, multiplication of bred-up strains. Ala.

Multiplication of wilt-resistant varieties of cotton. Ala.

The selection of wilt-resistant strains of cotton for Arkansas. Ark.

Cotton production: Disease resistance. Ark.

Cotton: Wilt resistance breeding experiments. Ala.

Plant-to-row tests with Cook and Cleveland varieties of cotton. Ala.

Cotton variety tests. Ala., Ark., Ga., (North Louisiana Experiment Station) La., (Starkville and Holly Springs Branch Stations) Miss., S.C., (Holland Station) Va.

Cotton variety tests. A comparison of short staple varieties. Ala.

A study of the adaptation of the important varieties of cotton for the southeast Missouri lowlands. Mo.

Variety trials with various farm crops, such as corn, wheat, oats, soy beans, cotton, etc. Tenn.

Cotton - varieties. Rate of blooming and the persistence of the young bolls under different seasonal conditions. Ala.

Cotton variety test. To determine whether or not cotton can be successfully grown in the irrigated valleys; to ascertain, as nearly as possible, the best varieties under the climatic conditions; to compare the short staple varieties and the long staple varieties. N.Mex.

Cotton. (Cont.)

Variety tests of cotton. To determine the yields of different varieties of cotton as shown by competitive tests. Okla.

Cotton variety experiments. To determine practical value, including profit of cotton under Guam conditions: To test out different varieties and types of cotton and to improve varieties and types found best adapted. Guam.

Cotton wilt test. The testing of various commercial varieties on badly wilt-infected soil. Miss.

Varietal and cultural tests with cotton. Ariz.

Tillage experiments with both cotton and corn. To determine the best depth of plowing and cultivation. Tenn.

Cotton spacing experiments. Miss.

Cotton: The effects of thick and thin stands of plants on earliness and yield. Ala.

Spacing of cotton and single-stalk method of culture. Ga.

Cotton culture and spacing tests. S.C.

Place effect of cotton. Ga.

Effect of environmental factors upon time and rate of blooming in the cotton plant. Ga.

Cotton "place effect." To study the effect on yield, length of lint, quality of lint and per cent of oil produced in different cotton growing regions by planting from the same lot of seed. La.

Place effect studies with cotton. To study the place effect upon cotton qualities when seed of the same strain have been grown in different localities. N.C.

Cotton production: Cultural methods. Ark.

Cultural methods for cotton. (Holly Springs and Delta Branch Stations) Miss.

Rate-of-planting experiments with both cotton and corn. Tenn.

Rate of distribution of seed and time of thinning cotton. Tex.

Method of thinning cotton on wilt-infected land. Ala.

Thinning experiments with cotton. Tenn.

The effect of biennial subsoiling on cotton, corn, and cowpeas. Ala.

Cotton. (Cont.)

Cotton. Effect on earliness, type of plant, and yield, of planting on a bed on a level and in a water furrow. Ala.

Cultural experiments with cotton, including fertilizer tests. To determine the value of different mineral elements of plant food alone and in combination upon the yield and quality of cotton produced. Mo.

Triangle fertilizer experiment with cotton grown continuously and in rotations. Ga.

Complete fertilizer experiments with cotton. Ala.

Rate of application of fertilizer to cotton. Ga.

Fertilizer studies for cotton. (Holly Springs Branch Station) Miss., (Holland Station) Va.

Sources of nitrogen experiments with cotton. Ala.

Source of nitrogen in cotton fertilizer. Ga.

Various forms of nitrogen for cotton. Miss.

Nitrogen requirements of cotton. Ga.

Time of applying nitrate of soda to cotton. Ala.

To test the time when nitrate of soda should be applied to corn and cotton to secure the greatest benefits. Ala.

Time of application experiments with nitrate of soda for cotton and corn. Tenn.

A comparison of nitrate of soda with peanut meal, velvet bean meal, and cottonseed meal as a source of nitrogen for cotton. Ala.

A comparison of nitrate of soda, calcium cyanamid, ammonium sulphate, and ammonium nitrate on cotton as a source of nitrogen. Ala.

Cotton, sources of phosphate. Ala.

Phosphorus requirements of cotton. Ga.

Acid phosphate v. rock phosphate on cotton. Ala.

Comparing acid phosphate, basic slag, and rock phosphate as sources of phosphorus for cotton and corn. Ala.

Cotton. (Cont.)

Phosphate investigations. Tests of various carriers of phosphorus as applied to cotton. Miss.

Source of potash in cotton fertilizer. Ga.

Cotton. Lime experiments. Ala..

Top-dressing cotton. Ga.

Best time to apply and kind of top-dresser to use on cotton. To determine the best time to apply soluble nitrogen as a second application to cotton, also comparing the carriers most commonly used. N. C.

Residual effect of fertilizer for cotton. Ga.

Effect of different winter cover crops, especially rye, on the following cotton crop. Ga.

Residual effects of crops of corn, sweet potatoes, cowpeas, chufas, and others on cotton. Ala.

The effect of conditions of harvesting and storage on the vitality of cottonseed. Ark.

Chemical changes which take place in cottonseed during growth, and factors affecting same. Orla.

Factors influencing the oil content of [cotton] seed. S.C.

Dropping of cotton bolls. Determination of causes with special reference to those apparently parasitic. Ark.

Study of behavior of cotton. The irrigation of cotton. Calif.

Cotton. A comparison of light from light, and heavy from heavy cottonseed on yields, germination, and height of plant. Ala.

Relation of soil and nitrogen content of cottonseed to other characters. Ark.

Cotton marketing and warehousing survey. Study of the economic soundness and relative advantages of all towns in the State as marketing and storage points, analysis of cotton production and point of manufacture, analysis of cotton manufacture in reference to point of production. N.C.

Methods of conducting cotton experiments. Ga.

Cowpeas.

Cowpea variety tests. Ala., Ga., (Substations) Va.

Variety test of cowpeas. To determine the yield of different varieties of cowpeas, as shown by competitive tests. Okla.

Variety tests with cowpeas for grain and hay. (North Louisiana Station) La.

Tests of varieties of cowpeas for seed and hay. Md.

Cowpeas: Varieties, culture, and yields of hay and grain. Va.

To isolate more adaptable and high-yielding strains of cowpeas, soy beans, and mung beans for Porto Rico. P.R.

A study of the adaptations of the important varieties and selections of cowpeas to the various soil types of the State. Mo.

Green manuring experiments, with cowpeas in particular. Tenn.

The effect of the cowpea crop on soil fertility with special regard to:
(a) A wheat crop following; (b) a corn crop following. A study of the nitrogen content of the soils is included. Tenn.

Cultural experiments with cowpeas. Mo.

The effect of biennial subsoiling on cowpeas, corn, and cotton. Ala.

Comparison of cowpeas and soy beans for hay and seed production. Mo.

Comparison of alfalfa and sweet clover and cowpeas and soy beans as hay crops. (Bowling Green Station) Va.

To determine the best method of planting grain sorghums and cowpeas together. Okla.

Experiments in the associated growth of corn and cowpeas. Mo.

Relation of cowpea growing to wheat production on continuously cropped land. Mo.

Dry land crops.

Studies at the Sulphur Spring Valley Dry-farm, including variety tests, rate and date of seeding tests, method of planting tests, inoculation of legumes.--Tests designed to determine whether dry-farming is feasible in this particular locality. Ariz.

Dry land crops. (Cont.)

Studies at the Prescott Dry-farm, including variety tests, rate and date of seeding tests, method of planting tests, inoculation of legumes.-- Tests designed to determine whether dry-farming is feasible in this particular locality. Ariz.

Crop rotation and tillage experiments; experiments in seed bed preparation for wheat; commercial fertilizer tests. (In cooperation with Office of Dry Land Agriculture, B.P.I., U.S.D.A.). (Fort Hays Branch Station) Kans.

A series of crop rotation and tillage experiments. (In cooperation with the Office of Dry Land Agriculture, B.P.I., U.S.D.A.). (Garden City Branch Station) Kans.

Dry land agriculture investigations: Spacing tests with mile. (Garden City Branch Station) Kans.

Dry land agriculture investigations: Varietal tests of serghums. (Garden City Branch Station) Kans.

Dry land crops rotation and tillage methods experiments. (North Platte Substation) Nebr.

Study of relations of soil water and crop in respect to irrigation and dry farming supplemented by irrigation. N.Mex.

Field crop investigations under both dry farming and irrigation. Date and rate of seeding investigations with wheat, oats, barley, rye, field peas, corn, alfalfa, sunflowers, grasses, potatoes, and other minor crops. (In cooperation with the Office of Cereal Investigations, U.S.D.A.). (Burns Branch Station) Oreg.

Field crop investigation under both dry farming and irrigation: Varietal trials with wheat, oats, barley, rye, field peas, corn, alfalfa, sunflowers, grasses, potatoes, and other minor crops. (In cooperation with the Office of Cereal Investigations, U.S.D.A.). (Burns Branch Station) Oreg.

Nephi dry farm substation, with the following subprojects: (1) Cereal breeding; (2) rotations; (3) soil fertility; (4) varietal trials; (5) cultural tests; (6) cropping systems; (7) miscellaneous experiments (rate and date of seeding winter wheat); and (8) soil moisture studies. Utah.

Investigations at dry farm stations (other than Nephi). Utah.

Miscellaneous field studies, including dry farm investigations. To investigate crops suited to dry farming in high altitudes. Utah.

Dry land crops. (Cont.)

Soil moisture investigations as related to problems in dry farming. Wash.

Emmer.

Emmer, rye, and miscellaneous grain investigations. (Substations) Idaho.

Variety testing, breeding, acclimatization, and cultural studies of small grains. To improve the quality and yield of small grains, including winter wheat, oats, spring wheat, rye, winter barley, and winter emmer. Nebr.

Fiber plants. (See also Flax, Hemp, and Sisal.)

The native fiber plants of Iowa. Iowa.

Field beans.

Bean beds and centgeners to obtain superior individuals. Mich.

Bean increasing. Mich.

Bean segregation from crosses to find a bean that is resistant to anthracnose and mosaic as well as productive. Mich.

Breeding field and garden beans for disease resistance. N.Y. Cornell.

Production of field beans. W.Va.

Field and garden bean and pea investigations. Variety tests. (Aberdeen Substation) Idaho.

Variety test with beans. (Tribune Branch Station) Kans., Miss.

Bean variety testing. Mich.

Variety test of field and garden beans. (Valentine Substation) Nebr.

Field bean varieties. R.I.

A study of field beans as to types and varieties. N.Y. Cornell.

Rate of seeding beans and its effect on the yield. Mich.

Freeing beans of disease. Mich.

Disease resistance in beans. Mich.

Field beans. Cont.

Seed bean investigations. (Aberdeen Substation) Idaho.

Field peas.

Field and garden pea investigations. Breeding and improvement. Idaho.

Breeding of field and canning peas. Wis.

Field and garden pea investigations. Variety tests with standard varieties. (Sandpoint Substation) Idaho.

Field and garden pea and bean investigations. Variety tests. (Aberdeen Substation) Idaho.

Variety tests with peas. Miss.

Field and garden pea investigations. To determine the varieties best adapted to irrigated and dry lands. (High Altitude Substation) Idaho.

Variety test of field peas, soy beans, vetch, and serradella. (North Central Branch Station) Minn.

Varietal trials, including wheat, barley, oats, field peas, corn, and potatoes. (In cooperation with the Offices of Cereal Investigations and Forage Crop Investigations, U.S.D.A.). (Moro Branch Station) Oreg.

Yield for seed and forage of Canadian field peas. (Union Branch Station) Oreg.

Classification and testing of field peas found on the market and secured from other sources. Mich.

Field and garden pea investigations. Cultural experiments. Idaho.

Cultural trials with Tangier peas. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.). Oregon.

Value of the various pea varieties as a nurse crop for alfalfa. (Aberdeen Substation) Idaho.

Field pea investigations. (Upper Peninsular Substation) Mich.

Field and garden pea investigations. Classification studies. Idaho.

Flax.

Genetic studies of flax. N.Y. Cornell.

Breeding of fiber flax. Wis.

Flax. (Cont.)

Flax breeding. To improve our present bulk varieties by pure line selections. The comparative study of a large number of these pure lines from the standpoint of yield and resistance to flax wilt. N.Dak.

To produce high-yielding fiber and seed flax types. Minn.

Development of superior strains of flax for Michigan conditions. (In cooperation with the Bureau of Plant Industry, U.S.D.A.). Mich.

Variety testing. Comparative study of the yielding capacities of different flax varieties for eastern North Dakota. N.Dak.

Date-of-seeding. To ascertain the best time to seed flax. N.Dak.

Rate-of-seeding. To learn the best rate of seeding the crop, N. Dak.

Tillage trials. A study of weeds in the field and their control as effected by intermittent tillage and date of seeding the flax crop. N.Dak.

Flax rotation. To determine an effective rotation of crops for North Dakota, with special attention to the maximum production of flax on old land. Also rotations with emphasis on weed control, wilt control, and the conservation of moisture. N. Dak.

Forage crops.

Forage crop experiments. Ala.

Forage crop investigations. (In cooperation with the Offices of Dry Land Agriculture and Cereal Investigations, U.S.D.A.). (Dickinson Substation) N.Dak.

Forage crop tests. (Northeast Demonstration Farm) Minn.

Forage crop experiment with miscellaneous crops. (Lightfoot Station) Va.

A study of some of the annual forage crops with special reference to yields of dry matter and chemical composition. Wyo.

To determine the forage crops that can best be grown in North Dakota. (Substations) N.Dak.

Tests with imported grasses and forage plants. S.C.

Comparative tests with forage crops and grasses. S.C.

Forage crops. (Cont.)

Tests of various forage crops and forage crop varieties and cultural experiments. (In cooperation with the Office of Forage Crop Investigations, B.P.I., U.S.D.A.). (Fort Hays Branch Station) Kans.

Short season forage crop test. Mich.

Annual forage crops. Conn. Storrs.

Forage crops: Variety tests. (Valentine Substation) Nebr.

Variety tests of grain and forage. Mont.

Tests of crops, species and varieties as to value for soiling crops. (Astoria Branch Station) Oreg.

Introduction and testing of miscellaneous forage crops. (In cooperation with the U.S. Department of Agriculture). Idaho.

The introduction and testing of such crops as flax, buckwheat, sunflowers, corn, etc., for the production of grain or forage. (High Altitude Substation) Idaho.

A study of certain spring, summer, and fall sown crops for forage. To determine, if possible, the relative adaptation and productivity of certain spring, summer, and fall sown forage crops and the yield of several mixtures of these crops. Mo.

To determine the best field practices for handling various forage crops, both for production of forage and production of seed. Wash.

Experiments in forage, green manure, and winter cover crops. To determine the best use of rye, winter vetch, sweet clover, the common clovers, and alfalfa for forage, green manures, and winter cover crop purposes. Md.

Artichokes as a silage and forage crop. Idaho.

Trials of new and rare plants in the forage crops garden. Ga.

Introduction and trial of new forage plants. To include the introduction and trial on small plot areas of new plants which may prove valuable for hay, pasture, silage, or other forms of roughage for stock. Testing of some of the most promising of these new plants. Fla.

Forage crop investigations. Including an extensive set of annual forage crops compared as to yield, date of seeding, rates of seeding and methods of seeding; also a study of alfalfa from seed procured from different sources. Nebr.

Forage crops. (Cont.)

Forage crop experiments: To introduce and test leguminous plants as feed for animals. P.R.

Forage crop investigations: To develop pasture and soiling crops adapted to local conditions. Guam.

Nursery trials of miscellaneous forage crops. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.). Oreg.

Effect of fertilizers on hay and seed production. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.). Oreg.

Development of a soiling-crop system for summer soiling for dairy cows. (Astoria Branch Station) Oreg.

Special forage crops: A combination of the following: (a) corn and soy beans; (b) corn and sunflowers; (c) field peas and oats; (d) soy beans and sudan grass; (e) soy beans and Hubam clover; (f) sudan grass and Hubam clover. Ohio.

Chemical composition of forage crops as affected by various factors. Iowa.

The chemical analysis of forage crops and feeding stuffs. Wyo.

Grasses, general.

Improvement of grasses and legumes by selection of plants and artificial breeding. (North Central Branch Station) Minn.

Attempts to secure improved strains of timothy, clover, and other grasses. (Arcostook Farm) Me.

Selection work with blue grass. To develop a more hardy strain adapted to this locality. Miss.

Grass and clover selection. W.Va.

Orchard grass selection and improvement. Idaho.

Species and varieties of grasses. Ala.

Variety tests of grasses. (Valentine Substation) Nebr.

Variety test of perennial grasses. (North Central Branch Station) Minn.

Trials of different grasses and legumes in Bermuda grass pastures. Ga.

Tests with imported grasses and forage plants. S.C.

Grasses, general. (Cont.)

Test of grasses: To learn which are best suited to interior Alaska. Alaska.

A comparison of 10 meadow grasses as regards yields, quality (including palatability), and permanency. Ohio.

Testing varieties of grasses and clovers both for forage and for hay as to their adaptability to local climate and soil conditions. Miss.

To determine the best varieties of grasses and legumes for the production of forage and the most successful cultural practice. (High Altitude Substation) Idaho.

Comparative test with forage crops and grasses. S.C.

To ascertain what species of grasses and legumes are best suited to the peculiar conditions. Alaska.

Yield tests of various grass and clover mixtures. N.Y. Cornell.

Tests with crested wheat grass. Mont.

Pasture trials with grasses and legume mixtures on hill land. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.). Oreg.

Plat trials with grasses for forage and seed production. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.). Oreg.

Nursery trials with grasses for forage and seed production and disease resistance. (In cooperation with the Office of Forage Crops Investigations, U.S.D.A.). Oreg.

Grasses and clover for forage and permanent pasture. Including Bermuda grass, bur and crimson clover. (Holly Springs Branch Station) Miss.

Experiments with grasses: To obtain valuable fodder grasses for stock raising purposes. Virgin Islands.

Grasses and legumes for hay and seed. Idaho.

Dates and grass seeding experiment. (Martinsville Station) Va.

A varietal and cultural test of grain, grasses, and miscellaneous crops. Ariz.

Fertilizer tests with grass. (Staunton and Martinsville Stations) Va.

Lawn and golf grasses. Permanent plats of different kinds and mixtures. R.I.

Lawn and golf grasses. Different manurial and fertilizer treatment as influencing especially the soil reaction and weed growth. R.I.

Grasses, general. (Cont.)

Production experiments with pasture grasses. (Garden City Branch Station) Kans.

Investigation of the marketing of blue grass and orchard grass seed. Ky.

To prepare a manual of the wild and cultivated grasses of Maryland, by which they can be identified and their economic value determined. Md.

Grasses and grass-like plants: Economic study of. Ariz.

Tests of meadow fescue y. timothy under various drainage conditions. Mass.

Grass and legume mixtures. Minn.

Grass garden. (Northeast Demonstration Farm) Minn.

Hay.

Cereal hay investigations. Calif.

Hay and pasture investigations. Iowa.

Annual hay crop Investigations. (Upper Peninsular Substation) Mich.

Emergency hay crops. Wis.

Testing varieties for hay production and methods of collecting seed.
(In cooperation with the Bureau of Plant Industry, U.S.D.A.). Ala.

Methods of handling hay. Colo.

Study of grain hay at different stages of cutting. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.). Oreg.

Relative production of red clover, alsike clover, yellow and white sweet clover for hay and pasture. (Union Branch Station). Oreg.

Methods of increasing hay production in the Humbolt River Valley. A study of the effect of various methods of irrigation upon the quantity and quality of hay produced. (In cooperation with the Bureau of Public Roads and Rural Engineering, U.S.D.A.). Nev.

Relation of hay volume to weight at different periods of stacking. (In cooperation with the Office of Forage Crops Investigations, U.S.D.A.). Oreg.

Moisture changes in stored hay. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.). Oreg.

To determine the digestibility of prairie grass hay at three stages of its growth by use of steers. N.Dak.

Hemp.

Hemp crossing and classification to obtain reliable strains for Michigan conditions. Mich.

Hemp investigations: Development of a variety which will mature seed in Wisconsin adaptability to various types of soils. Wis.

Nitrate experiments with hemp fiber. Ky.

Horse beans.

Cultural trials with vetches and related plants and with horse beans. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.). Oreg.

Nursery trials with vetches and related plants, new vetch varieties, and horse bean varieties. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.). Oreg.

Irrigation crops.

Irrigation project: To find what crops can best be grown at Williston under irrigation. (Williston Substation) N.Dak.

Field crop investigations under both dry farming and irrigation. Varietal trials with wheat, oats, barley, rye, field peas, corn, alfalfa, sunflowers, grasses, potatoes, and other minor crops. (In cooperation with the Office of Cereal Investigations, U.S.D.A.). (Burns Branch Station) Oreg.

Field crop investigations under both dry farming and irrigation. Date and rate of seeding investigations with wheat, oats, barley, rye, field peas, corn, alfalfa, sunflowers, grasses, potatoes, and other minor crops. (In cooperation with the Office of Cereal Investigations, U.S.D.A.). (Burns Branch Station) Oreg.

Johnson grass.

The inheritance in crosses between Sudan grass and Johnson grass. To determine the mode of inheritance of the root systems in crosses between Johnson grass and Sudan grass. Ga.

To determine a practical method of eradicating Johnson grass. N.Mex.

Kafir.

A study of inheritance of black hulled white kafir. Okla.

To determine the best rate to use in planting kafir. Okla.

Kafir (Cont.)

To find the effect of weeds and soil mulches on yield of kafir corn. Okla.

Kudzu.

Kudzu, multiplication. Ala.

Value of kudzu for pasture. Ga.

Effect of kudzu in smothering nut grass and for soil improvement. Ala.

Value of kudzu for forage in Wisconsin. Wis.

Legumes. (See also specific legumes.)

Improvement of grasses and legumes by selection of plants and artificial breeding. (North Central Branch Station) Minn.

To determine the best varieties of grasses and legumes for the production of forage and the most successful cultural practice. (High Altitude Substation) Idaho.

Variety tests of legumes, including sweet clover and alfalfa. (Valentine Substation) Nebr.

Leguminous forage crops test. To find legumes which can be successfully grown for forage. Alaska.

Trials of different grasses and legumes in Bermuda grass pastures. Ga.

Varietal and cultural tests of legumes. Ariz.

Annual summer legumes in Arkansas: Varieties, breeding, rates, and times of seeding and utilization. Ark.

To ascertain what species of grasses and legumes are best suited to the peculiar conditions. Alaska.

Comparison trials with different legumes. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.). Oreg.

Pasture trials with grasses and legume mixtures on hill land. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.). Oreg.

Legumes and grasses for hay and seed. Idaho.

Grass and legume mixtures. Minn.

Legumes (Cont.)

Legume tests for grain purposes. To find a profitable legume to grow in St. Croix to provide grain for human consumption. Virgin Islands.

Comparative use of legumes in rotation with corn. To secure comparative yields of corn grown after crops of cowpeas, soy bean, and velvet bean vines have been plowed under. (Sugar Experiment Station) La.

To determine the value of lime gypsum and sulphur as related to the growth of legumes. (Sandpoint Substation) Idaho.

Effect of companion cropping of corn with legumes. S.C.

Trials with various legumes for green dressing purposes. To find a legume resistant to caterpillar and fungus attacks which will be suitable for green dressing purposes. Virgin Islands.

Effect of legumes upon subsequent crops under varying conditions. Ark.

The composition of legumes (in Oregon). Oreg.

Legumes, inoculation.

Legume culture preparation. Idaho.

Production and distribution of bacteria for legumes. Mo.

Experiments in soil inoculation. N.J.

The natural inoculation of Colorado soils with legume bacteria. Colo.

Effect of various factors on inoculation by legume bacteria. Wash.

Factors that control the infection of legumes by bacteria. Wash.

Effect of inoculation of soy bean seed on the nitrogen content of the plant. Wis.

Effect of inoculation upon the growth of various legumes. Wis.

Millets.

Variety test of millets. (North Central Branch Station) Minn.

A variety test of millets, including Sudan grass and sorghum. Ohio.

Variety trials of millet, Sudan grass, and roots. Minn.

Testing millets for yields of hay. Va.

Milo.

Spacing test with milo. (Tribune Branch Station) Kans.

Irrigation agriculture investigations: Spacing tests with milo. (Garden City Branch Station) Kans.

Dry-land agriculture investigations: Spacing tests with milo. (Garden City Branch Station) Kans.

Mung beans.

To isolate more adaptable and higher yielding strains of cowpeas, soy beans, and mung beans for Porto Rico. P.R.

Oats.

Mendelian studies with wheat and oats. N.Y. Cornell.

Oats experiments. Inheritance studies. Me.

A study of inheritance in a cross of Avena sterilis algeriensis and Avena nuda inermis. Ohio.

Inheritance in oats: To determine the factors controlling the inheritance of color, hull, hulllessness, by means of hybridization and segregation. S.C.

Hybridizing experiments with oats. (Aroostook Farm) Me.

Hybridizing oats, with the object of combining the desirable qualities of two varieties into a single strain and to eliminate as many of the bad characters as possible. (Highmoor Farm) Me.

Breeding oats. (In cooperation with the U.S. Department of Agriculture). N.Y. Cornell.

Oat breeding investigations. Iowa.

Oat breeding. To develop earlier and better varieties. Alaska.

Breeding experiments with oats, with special reference to eliminating the beards of southern varieties through hybridization, selection, etc. Ala.

Oat, rye, and barley breeding. Wis.

Selection and breeding of oats. La.

Pure line selections of oats. (Aroostook Farm) Me.

Oats. (Cont.)

Selection within pure lines of oats and beans. N.Y. Cornell.

The production of improved strains of oats by pure line selections and by hybridization. Ohio.

Oat investigations and oat improvement. Tex.

To produce improved varieties of spring wheat, winter wheat, rye, and oats. (In cooperation with the U.S. Department of Agriculture). Minn.

Oat beds and centgeners to find better individuals. Mich.

Oat improvement. (Substation) Idaho.

Isolation and propagation of pedigree strains of oats. (Highmoor farm) Me.

Oats, multiplication of bred-up strains. Ala.

Oat increases for distribution. Mich.

Oat variety tests. Ala., (Colby Branch Station) Kans., La., (Aroostook and Highmoor Farms) Me., N.Y. Cornell, S.C., (Substations) Va., W. Va.

Variety tests of oats both from fall and spring seedlings. Ala.

Grain growing on field scale. To test barley, oats, wheat (spring and winter), rye (winter), and buckwheat on a field scale. Including also variety tests. Alaska.

Variety trials and cultural experiments with small grains, wheat, barley, and oats. Calif.

Variety and strain tests of oats. To find pure lines of oats to displace the poor quality of seed commonly used in the State. Conn. Storrs.

Variety test of winter cereals, wheat, oats, rye, and barley. Ga.

Variety tests with wheat, oats, barley, and miscellaneous grains under dry land and irrigation. (High Altitude Station) Idaho.

Variety tests with oats, wheat, and barley. (Aberdeen and Sandpoint Substations) Idaho.

Varietal and cultural tests and breeding work with wheat, oats, barley, corn, and grain sorghums. (Fort Hays Branch Station) Kans.

Variety tests of wheat, spring and winter barley, oats, and rye. (North Central Branch Station) Minn.

Oats. (Cont.)

Varietal trials, including wheat, barley, oats, field peas, corn, and potatoes.
(In cooperation with Offices of Cereal Investigations and Forage Crop Investigations, U.S.D.A.). (More Branch Station) Oreg.

Varietal trials of winter and spring grains, including wheat, oats, and barley.
(In cooperation with the Office of Cereal Investigations, U.S.D.A.). Oreg.

Varietal tests with oats, barley, and wheat. (Union Branch Station) Oreg.

Varieties of soy beans and soy beans v. oats in rotation. Penn.

Variety trials with various farm crops, such as corn, wheat, oats, soy beans, vetch, etc. Tenn.

Variety tests and selections of hardy strains of winter oats. Md.

Oats: A test of common varieties and of pure-line strains for yield, quality, and adaptability. Ohio.

A study of oat varieties with a view to their improvement. Penn.

Variety testing, breeding, acclimatization, and cultural studies of small grains.
To improve the quality and yield of small grains, including winter wheat, oats, spring wheat, rye, winter barley, and winter emmer. Nebr.

To test new and standard varieties of spring wheat, oats, barley, and winter rye, as to yielding capacity, resistance to disease, trade value as measured by milling and baking tests. N.Dak.

Oats variety tests. To learn which varieties are best suited to the climate. Alaska.

To determine the yields of different varieties of oats as shown by competitive tests. Okla.

Oat variety testing of commercial varieties. Mich.

Oat variety testing of breeding strains to compare the production of the strains in order that the best may be increased. Mich.

Variety testing of oats and head selection for improvement. Wyo.

A study of important varieties of oats for Missouri conditions. Mo.

Oat production:

Variety studies, selection, and breeding. Cultural methods. Ark.

Oats: Variety tests and cultural experiments. Va.

Oats. (Cont.)

Dates and rates of seeding oats. Conn. Storrs.

To study dates and rates of seeding wheat and oats at the Piedmont Branch Station, and oats at the Coastal Plain Branch Station. (In cooperation with the U.S. Department of Agriculture). N.C.

Date-of-planting experiments with oats, wheat, and barley. Tenn.

Dates of seeding spring grain, wheat, oats, and barley. Mont.

Rate of seeding wheat, oats, barley, and corn. (Northwest Experiment Farm) Minn.

Rates of seeding spring grain, wheat, oats, and barley. Mont.

A study of time, rate, and method of seeding oats. Ohio.

Tests of dates of application of nitrate of soda, sulphate of ammonia, and calcium cyanamid on fall planted Red Rust Proof oats. Ala.

Continuous cropping plats of oats, barley, wheat. Two tons of manure each year per acre. (West Central Substation) Minn.

To learn the value of acclimated v. imported seed oats; to compare the value of different grades of seed oats; to learn the value of primary, secondary, and double oats for seed purposes. Minn.

Oat production and storage investigations. Iowa.

Effect of stage of maturity at harvest upon the germination power of oats, wheat, and barley seed. Wyo.

The relation of quality of seed of oats, as graded by the fanning mill, to yield. Ohio.

Do seed oats deteriorate when sown continuously in this latitude? Conn. Storrs.

Investigation of oats with reference to resistant varieties to rust and rust infection. Iowa.

Experiments with rust resistant oats. Species and varieties tested for rust resistance and if found, to combine with other good characters of the most promising oats. (Highmoor Farm) Me.

Oats and hairy vetch sown together. (North Louisiana Experiment Station) La.

Investigation of occurrence of barley in oats. Iowa.

Observations on the stage of vetch and oat crop for silage. Oreg.

Tests (chemical) of oats, corn, and rye. Minn.

Oats. (Cont.)

Classification trials with oats. (In cooperation with the Office of Cereal Investigations, U.S.D.A.). Oreg.

Pasture.

Pasture experiments. (In cooperation with the U.S. Bureau of Soils.) Penn.

Pasture experiment. Penn.

Hay and pasture investigations. Iowa.

Variety tests of pasture grasses. (In cooperation with the Office of Western Irrigation Agriculture Investigations, U.S.D.A.). (Hermiston Branch Station) Oreg.

Grasses and clover for forage and permanent pasture. Including Bermuda grass, bur and crimson clover. (Holly Springs Branch Station) Miss.

A study of the forage on the pastures and ranges of California: Coast ranges; Sierra National Forest; composition and carrying capacity of a pasture north of the campus. Calif.

Relative production of red clover, alsike clover, yellow and white sweet clover for hay and pasture. (Union Branch Station) Oreg.

Pasture and meadow crops for Arkansas. Ark.

Ecological study of pasture vegetation. Mass.

Permanent improvement of blue grass pastures. Iowa.

Rye as a pasture crop. (Valentine Substation) Nebr.

Crops to supplement rye in summer. (Valentine Substation) Nebr.

Sweet clover pasture. (Scottsbluff Substation) Nebr.

Pasture and annual pasture crops, and the effects of top-dressing. (Valentine Substation) Nebr.

Pasture renovation. W. Va.

Pasture improvement. Conn. Storrs.

Studies as to the best treatment and the value of pastures. N.Y. Cornell.

A study of pasture values and pasture methods for horses, cattle, sheep, and swine. Kans.

Studies of rotation grazing and various methods of treating native pastures. Kans.

Pasture. (Cont.)

Permanent pastures: Making of a permanent pasture by determining the combination of plants best suited to obtain a long period of uniform grazing and the cost and method of seeding and time necessary to make a permanent pasture under local conditions. Miss.

Temporary pastures: To work out a system of temporary pasture plants that will furnish continual grazing throughout the year as well as for summer grazing, principally for swine. Miss.

Yard manure, fertilizers and lime on pastures. Penn.

Plats of pasture grasses, which receive different fertilizer treatments and from which the grass is clipped at stated intervals, then weighed and samples analyzed to ascertain relative value of grass from different plats. Va.

Studies in top-dressing meadows. Del.

Top-dressing permanent grass lands. Mass.

Triangle soil test on pasture land. Conn. Storrs.

Pasture yields for lambs. Oreg.

Grazing trial: To determine the carrying capacity of pasture grasses and the most economic season for and manner of grazing pastures. (In cooperation with the U.S. Department of Agriculture). N.Dak.

Dry land range pasture-carrying capacity. (Scottsbluff Substation) Nebr.

Pasture survey, with attention given to the succession of vegetation in different methods of handling. Utah.

Pasture conditions in West Virginia. W.Va.

Peanuts.

Selection work with peanuts. (Holland Station) Va.

Improvement of the peanut by increasing the yield of nuts and oil content through selective breeding. Fla.

The study and improvement of the peanut. Tex.

Plant-to-row test of White Spanish peanuts. Ala.

Peanuts, variety test, liming, and rate of seeding. Ala.

Variety test of peanuts. Ga., S.C., (Holland Station) Va.

Peanuts. (Cont.)

Fertilizer experiments with peanuts. (Holland Station) Va.

Complete fertilizer experiments with peanuts. Ala.

Experiments with Spanish peanuts, Sudan grass, and sorghum for forage. Mo.

Peanuts: Experiments comparing the rate and amount of germination of shelled seed, nuts in broken pods, and nuts unshelled. Ala.

Rotation and fertilizer experiments with corn, sweet potatoes, and peanuts.
To determine the production of corn, sweet potatoes, and peanuts in rotation and using various forms of commercial fertilizer and lime. Fla.

Effect of age on germination of shelled peanuts. Ala.

Popcorn.

Popcorn: Study in heredity to ascertain probable extent to which factor for good or poor popping quality is inherited and may be transmitted. (In cooperation with the Bureau of Plant Industry, U.S.D.A.). Mich.

Breeding and selection to obtain pure strains of hull-less popcorn. (In cooperation with the Bureau of Plant Industry, U.S.D.A.). Mich.

To ascertain the number of strains of popcorn properly belonging to the hull-less group. (In cooperation with the Bureau of Plant Industry, U.S.D.A.). Mich.

Time and manner of harvesting popcorn and its effect on the quality. (In cooperation with the Bureau of Plant Industry, U.S.D.A.). Mich.

Potatoes.

Genetics and breeding.

Tuber-unit potato improvement. (Aberdeen Substation) Idaho.

Irish potato hill and tuber-unit seed selection. To determine the value of hill and tuber-unit methods of seed selection for intensifying desirable characteristics of potatoes, and if these methods can produce higher-yielding strains. N.C.

To determine a practical means of developing a vigorous productive strain of early seed potatoes adapted to the State. A study of the factors or agencies influencing or causing degeneracy of Irish seed potato stock. Okla.

Potato breeding. Utah., W. Va.

Potatoes. (Cont.)

Potato breeding. Selected seed raised by the U.S. Department of Agriculture, tested under field conditions, and grown for distribution to farmers. (Arcoos-took Farm) Me.

Potato investigations. Hill selection. (West Central Substation) Minn., Penn.

Potato investigations: Hill selection work. (In cooperation with the U.S. Department of Agriculture.) Oreg.

Potato improvement by the hill selection and tuber-unit methods, to determine its practicability for the truck grower. Calif.

Tuber selection studies with potatoes. N.Y. Cornell.

Improvement of potatoes by selection. Wis.

Seed selection work with potatoes. Mont.

Irish potato seed improvement. To determine the value or superiority of certified or inspected seed stock over uncertified or uninspected stock. (In cooperation with the U.S. Department of Agriculture). La.

Variety studies.

Potato variety tests: To find the varieties best suited to Alaska. Alaska.

Potato investigations: Varietal experiments. (Aberdeen Substation) Idaho.

Irish potatoes: Variety studies. Ky.

To test the resistance of various varieties and strains of potatoes to various diseases. Me.

Potato investigations: Variety tests. (Substations) Minn., (Valentine Substation) Nebr., N.J., (In cooperation with the Offices of Dry Land Agriculture and Cereal Investigations, U.S.D.A.)-(Dickinson Substation) N.Dak., (In cooperation with the U.S. Department of Agriculture) Oreg., R.I., S.C., (Substations) Va., W. Va., Wis.

Varietal trials, including wheat, barley, oats, field peas, corn, and potatoes. (In cooperation with the Office of Cereal Investigations and Forage Crop Investigations, U.S.D.A.) (Moro Branch Station) Oreg.

Tests with strawberries and potatoes. (Hood River Branch Station) Oreg.

A potato variety and type test. N.Y. Cornell.

Variety tests of potatoes. Irrigated land. Mont.

Variety tests of non-irrigated potatoes. Mont.

Potatoes. (Cont.)

Variety testing and selection of high-yielding strains of potatoes by the "tuber-unit" method. Wyo.

Variety test of Irish potatoes: (1) Early varieties; (2) second crop varieties. (Willard) N.C.

A study of potato types as to regional adaptation in New York. N.Y. Cornell.

Irish potato variety test: To determine the best varieties for western North Carolina. (Swannanoa) N.C.

To determine the best varieties of potatoes for North Dakota. N.Dak.

A study of the varieties of potatoes with a view to improving those best adapted to Pennsylvania conditions. Penn.

Varieties adapted to the Appalachian region of Virginia, also selections of promising strains by the "tuber-unit" method; fertilizer requirements; farm storage of potatoes. Cultural methods. Va.

Test of adaptability of seedling potatoes. Alaska.

Investigations in potato culture. Seedling tests. (Northeast Demonstration Farm) Minn.

Investigations in potato culture. Seedling variety tests. (Northeast Demonstration Farm) Minn.

Potato investigations: Varieties, cultural, fertilization. (Upper Peninsular Substation) Mich.

Irish potatoes: Variety, culture, and fertilizer tests. (Holly Springs Branch Station) Miss.

Seed studies.

Seed potato studies. Iowa.

Seed potato production. Wash.

Seed potato growing in high altitudes. Colo.

Source of seed: Trials with potatoes. Conn. Storrs.

Potato investigations: Source-of-seed and fertilizer tests. Kans.

Indiana-grown v. northern-grown seed potatoes. To compare Indiana-grown seed potatoes with seed stock from Michigan and Wisconsin and also selections from these stocks. Ind.

Potatoes. (Cont.)

Investigations with seed potatoes. A comparison of home-grown with northern-grown seed. Mo.

Irish potatoes: Testing value of different sources of seed. To determine comparative value of Maine-grown seed, second crop seed produced in the Coastal Plain and western North Carolina and seed in different stages of maturity, as the most desirable seed for the early crop of Irish potatoes in eastern North Carolina. (Willard) N.C.

To determine whether or not Irish potato seed can be produced in western North Carolina that will be of value for eastern North Carolina. (Swannanoa) N.C.

Potato selection for seed purposes: To determine (1) the value of western Nebraska seed potatoes compared with those from other regions; (2) the value of irrigated potatoes for seed purposes; (3) to study the general cultural factors influencing the production of seed potatoes; (4) to study varieties in various parts of Nebraska. Nebr.

Size of potato seed piece. N.J.

Size of seed used in planting. (North Central Branch Station) Minn.

Effect of the size and portion of seed per tuber used on the growth and yield of the potato plant. Wyo.

Effect of different sized portions of seed at different moisture content on the early growth of the potato plant. Wyo.

Effect of diseased and ill-shaped seed potatoes on succeeding crop. Colo.

Variation in the yield of potato plants from the two halves of the same tuber. N.Y. State.

Effect of siccatives on preventing decay on the potato seed piece. N.H.

A study of the factors influencing seed production and tuber formation in Irish potatoes. S.C.

Comparison of sprouted and good potato seed. (In cooperation with the U.S. Department of Agriculture). Oreg.

Selected y. bin run potatoes for seed. (North Central Branch Station) Minn.

Mature compared with immature potatoes for seed. (North Central Branch Station) Minn.

To determine the effect of various ways of handling seed potatoes on the crop. N.Dak.

Sprouting early Irish potatoes for a second crop. Ala.

Potatoes. (Cont.)

The production of mosaic-free seed potatoes. (Highmoor Farm) Me.

Potato investigations. Seed selection. (Northwest Experiment Farm) Minn.

Seed treatment of Irish potatoes. Ark.

Cultural studies.

Investigations in potato culture. Cultural tests. (Northeast Demonstration Farm) Minn.

Potato culture experiments. W. Va.

Potato investigations. Cultivations; surface ridged. (West Central Substation) Minn.

Cultural practices with Irish potatoes. (Willard) N.C.

Potato culture test: To learn how to grow potatoes with best results. Alaska.

Potatoes: Methods of planting. (Northwest Experiment Farm) Minn.

Potato investigations: Cultural trials for potatoes - (a) size of piece for planting; (b) method of cutting for seed; (c) comparison of cut and uncut seed; (d) comparison of cut seed with and without land plaster; (e) time of planting; (f) depth of planting; (g) hill v. flat cultivation. (In cooperation with the U.S. Department of Agriculture.) Oreg.

Cultivation of non-irrigated potatoes. Kind and amount. Mont.

Mulching potatoes on irrigated land. Mont.

Comparison of straw mulch and cultivation with dry farm potatoes. Mont.

Distance of planting potatoes on dry land. Mont.

Effect of the distance apart in row and of missing hills on yield and quality of potatoes. Effect of missing hills on total yield. Wyo.

Dates and rates of planting potatoes. Conn. Storrs.

Potato investigations. Rate of planting. (North Central Branch Station) Minn.

Potato investigations. Depth of planting. (West Central Substation) Minn.

Potato investigations. Early as compared with late planting. (North Central Branch Station) Minn.

Missing hills in potato fields. Their effect upon the yield. N.Y. State.

Potatoes. (Cont.)

Fertilizer experiments.

Potato investigations: Fertilizer tests. (Northwest Experiment Farm) Minn.

Potato fertilization. Wis.

Fertilizer experiments with potatoes. N.J.

Mineral requirements of the potato plant. Md.

Effect of commercial fertilizer on potato yield and quality. (In cooperation with the U.S. Department of Agriculture). Oreg.

Potatoes in rotations and fertilizer tests. (Scottsbluff Substation) Nebr.

Continuous fertilizer experiment. To determine whether or not certain potato difficulties are associated with fertilizer practices. (Aroostook Farm) Me.

A study of balanced and unbalanced fertilizers and the best proportion of the three fertilizer ingredients, ammonia, phosphoric acid, and potash. (In cooperation with the Office of Soil Fertility Investigation, B.P.I., U.S.D.A.). N.J.

Spraying experiments.

Spraying experiment on Irish potatoes. Ga.

Potato spraying experiments: Control of early blight of potatoes. Iowa.

Stimulating influence of Bordeaux mixture on potato plants. N.J.

The stimulating effect of Bordeaux mixture on plants, especially the potato plant. Vt.

Investigations in potato culture. Bordeaux spray tests. (Northeast Demonstration Farm) Minn.

Potato spraying experiments. To determine the effect of pressure on the protection afforded by Bordeaux mixture. Effect of number of nozzles used per row in spraying on late blight control. Degree of control of late blight obtained with different Bordeaux mixtures and Burgundy mixture. N.H.

A standard experimental plant for spraying potatoes. Penn.

Miscellaneous.

Potato investigations. Colo.

Potato production experiments. Idaho.

Potatoes. (Cont.)

Irish potato studies. Ariz.

Thinning experiments with potatoes. Mont.

Thinning non-irrigated potatoes. Thinning to one stalk and various distances apart. Mont.

Relation between the nature of the growth of the potato plant to yield. Wyo.

A study of the relation of vigor to yield in Irish potatoes. (Willard) N.C.

Yielding power of irrigated v. non-irrigated potatoes. (Judith Basin and Huntley Substations) Mont.

Storing first crop of Irish potatoes in sweet potato storage house. To determine the value of sweet potato storage house for storing first crop of Irish potatoes. (Willard) N.C.

Place effect on potatoes. (Northeast Demonstration Farm) Minn.

A study of degeneracy in potatoes: Rapidity, factors causing, and means of control. Nebr.

A study of the causes of deterioration in potato. Conn. Storrs.

The "running out" of potatoes on Long Island. N.Y. State.

Reason for the failure of potato tubers to develop properly in parts of New Mexico. N.Mex.

Regeneration in potato tubers. Md.

Potato investigations: A comparison of yields from tubers under continuous selection for twenty years or more with those from little or no selection. Also the effect of protecting potato plants with insect cages in badly infected fields. Minn.

Potato investigations: Rotation tests. (Northwest Experiment Farm) Minn.

Potato investigations. Iowa.

Effect of various storage conditions on the quality and seed value of root crops, with special reference to potatoes. Md.

A study of factors involved in the production, storage, and handling of Irish potatoes. Ark.

Potatoes on alfalfa sod. N.J.

Marketing Nebraska potatoes. Nebr.

Potatoes. (Cont.)

Physiological studies of seed potatoes. N.J.

Potato classification and identification nursery. (In cooperation with the U.S. Department of Agriculture). Oreg.

Range studies. (See also Animal Husbandry- Cattle, grazing and range experiments.)

Plains crops and management. Colo.

Range improvement. Colo.

Range improvement: (a) Study of the ground cover under three types of grazing; (b) life history studies of the more important forage grasses; (c) meteorological factors as they affect the composition of the range; (d) reseeding studies. Col.

A study of range improvement through fencing. Ariz.

Reseeding ranges. Utah.

Revegetation of depleted ranges. The reestablishment of native range forage plants. A study of methods of increasing the carrying capacity of sheep and cattle ranges. Nev.

Range survey. Utah.

White sage studies (Eurotia lanata). Nev.

Miscellaneous observations in connection with range problems. Oreg.

Rape.

Seeding and cultural trials for production of rape. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.). Oreg.

Rape as material for silage. Iowa.

Residual effect of crops. (See also Rotations.)

To determine the effect of cropping systems upon the production of succeeding crops. Wash.

Effect of crops on those which follow. Minn.

Extent and nature of influence exerted upon plants by previous growth of other kinds of plants. R.I.

Effect of different winter cover crops, especially rye, on the following cotton crop. Ga.

Residual effect of crops. (Cont.)

Effects of certain crops on soil fertility. Plats planted to various crops and combinations of crops, followed by wheat as an indicator of the fertility. Miss.

Investigation of the value, nature, and duration of the residuary effects of vegetable matter when applied to soils of different texture. Mich.

To study the effect of returning residues, compared with removing them, on the yield of crops, the moisture content of soil, and temperature, aeration, granulation, and draft of plow. Ill.

Residual effects of other crops [on the corn crop]. (Scottsbluff Substation) Nebr.

Effect of legumes upon subsequent crops under varying conditions. Ark.

The effect of growing soy beans and crimson clover, cowpeas, and velvet beans (plowed under) on succeeding crops of cotton and oats in a two-year rotation of cotton, oats, and legumes. La.

Residual effects of crops of corn, sweet potatoes, cowpeas, chufas, and others on cotton. Ala.

Crop relations, comparative effect of tobacco and other crops on yields of succeeding crops. (In cooperation with the Bureau of Plant Industry, U.S.D.A.). Md.

The effect of the cowpea crop on soil fertility with special regard to a wheat crop and a corn crop following. A study of the nitrogen content of the soils is included. Tenn.

The comparative after-effects of various legumes and of grass as shown by succeeding corn crops. Tenn.

To secure the best method of growing and handling and especially the effect of drainage on the life of alfalfa; secondarily to determine the effect of yield of corn following the crop. (Sugar Experiment Station) La.

To study effect and to eliminate any bad effects of growing tobacco after cowpeas. (In cooperation with the U.S. Department of Agriculture). (Oxford and Reidsville) N.C.

Rice.

Rice improvement and methods of production. Tex.

Production of higher yields and more adaptable strains and varieties of rice. P.R.

Rice variety tests. Ala.

Rice. (Cont.)

Variety tests with rice under irrigation and under dry cultivation. (In co-operation with the Bureau of Plant Industry, U.S.D.A.). (Rice Experiment Station) La.

Rice production: Variety studies, weed control, rotation, soil fertility problems. Ark.

Variety and fertilizer tests with rice. To determine the most desirable variety or varieties of rice for Guam and to study the effect of different fertilizing constituents upon rice production on the principal types of Guam soils. Guam.

Fertilizer experiments with rice. Including sources of nitrogen and phosphoric acid, and applications of lime potash, manure, and complete fertilizers. (Rice Experiment Station) La.

Effect of permanent cropping. Including corn and cowpeas, corn and soy beans, corn and velvet beans, cotton and Lespedeza striata (Japan clover). La.

To clarify the problem of the forms of nitrogen and phosphate best suited for rice culture and to consider the advisability of using lime for rice soils. P. R.

To determine the best time of seeding and irrigating rice. P.R.

Methods of cultivation of rice. Including date and rate of seeding, manner of seeding, and character of seed bed. (Rice Experiment Station) La.

Irrigation experiments with rice. Including date and depth of application and daily loss of water at different depths. (In cooperation with the Bureau of Plant Industry, U.S.D.A.) (Rice Experiment Station) La.

Rice investigations in the Sacramento Valley. Drainage survey of rice lands. Calif.

Rotations.

Rotation experiments. Ark., Calif., (In cooperation with the Office of Cereal Investigations, U.S.D.A.)- (Burns Branch Station) Oreg., (Bowling Green and Chatham Stations) Va.

Potato investigations. Rotation tests. (Northwest Experiment Farm) Minn.

Crop rotations. (Northeast Demonstration Farm) Minn., (In cooperation with the Offices of Dry Land Agriculture and Cereal Investigations, U.S.D.A.)- (Dickinson Substation) N.Dak.

Studies of various crop rotations. Del.

Rotations. (Cont.)

A comparative study of various crop rotations. Tenn.

Crop rotation investigations (fields C and T). Minn.

Crop rotation experiments (Lexington field). Ky.

Rotation of crops for Colorado. Colo.

Studies of crop rotations for northern Wisconsin. Wis.

Rotation, fertilizer, and soil improvement investigations. A study of practical rotations in various agricultural regions of the State. Tex.

Crop rotations under irrigation. (Scottsbluff Substation) Nebr.

Study of crop rotations v. continuous cropping. Del.

A study of various rotations on continued production by soils of different types. N.Y. Cornell.

Alternate and continuous cropping. Minn.

Fertility investigations with continuous cropping (corn). The effect of manure and lime. Iowa.

Fertilizer rotation experiments. Ala.

Where fertilizers may be applied to best advantage in a given rotation, and whether in small quantities frequently or large quantities less frequently. Va.

Rotation and fertility investigations. Plots located at the University Farm and the Sandpoint Substation. Idaho.

Crop rotation and fertilizer studies. To determine the relative merits of several different crop rotations and to compare different systems of fertilization, including commercial fertilizers and farm manures. Ind.

Rotations and fertility tests (Greenville). Utah.

Crop rotation and fertilizer experiments. To make comparative studies of various rotations and fertilizer applications in regard to their effect upon crop and soil. Nebr.

Tests of crop rotations, commercial fertilizers, and manure. Kans.

Fertility experiments in a five-year rotation. Tenn.

A study of the effects of different fertilizers, lime, and plaster, and different amounts and sources, on the production of corn, oats, and mixed clover and timothy in rotation. Penn.

Rotations. (Cont.)

- A study of the comparative returns from manure applied immediately prior to (a) the seeding of wheat; and (b) the seeding of cowpeas in a cowpea-wheat rotation. Tenn.
- To determine the proper methods of fertility treatment for a rotation of tobacco, soy beans, wheat, and clover grown on a Huntington silt loam soil. W. Va.
- Barnyard manure at rates from 0 to 32 tons per acre upon 4 year rotation of corn, wheat, barley, clover. (West Central Substation) Minn.
- Experiments to determine the best place for the application of farmyard manure in a standard five-year crop rotation. Tenn.
- Studies in crop rotations. To study the most profitable point in the rotation to apply the usual fertility measures practiced by Maryland farmers. Md.
- Use of crop residues applied at rates from 0 to 2 tons per acre upon rotation of corn and wheat. (West Central Substation) Minn.
- Relations: A comparison of the value of green manures, barnyard manures, cultivated crops and summer fallow. Wyo.
- Rotation of crops, highly fertilized, and moderately fertilized. Ala.
- Effect of various crop rotations on the physical character of the soil. Mo.
- Crop rotation for fertility maintenance. (In cooperation with the Office of Western Irrigation Agriculture Investigations, U.S.D.A.). (Hermiston Branch Station) Oreg.
- Crop rotation and fertilizer experiments. To determine the influence of various rotations maintaining soil fertility. Mo.
- The influence of rotations upon the maintenance of soil fertility. S.Dak.
- A study of various crop rotations and the effect of the preceding crop upon yield. Ohio.
- A series of crop rotation and tillage experiments. (Garden City Branch Station) Kans.
- Crop rotation and tillage studies. (In cooperation with the Office of Dry Land Agriculture, U.S.D.A.). (Substations) N.Dak.
- A series of crop rotations and tillage experiments. (In cooperation with the Office of Dry Land Agriculture, U.S.D.A.). (Colby Branch Station) Kans.
- Rotation following delayed clearing. (Northeast Demonstration Farm) Minn.

Rotations. (Cont.)

Rotation following green clearing- virgin, burned-over forest soil- plowed.
(Northeast Demonstration Farm) Minn.

Rotation following green clearing- virgin, burned-over forest soil- disked.
(Northeast Demonstration Farm) Minn.

To determine the comparative effect of live stock, grain and commercial fertilize systems on the yields of crops in rotation. Okla.

To compare the effect of grain live stock, and diversified farming systems on kafir, wheat, and annual legumes in rotation. Okla.

Fertility investigations with two-year crop rotation: The effect of manure and crop residues; the effect of rock phosphate with manure (live stock system); the effect of rock phosphate with crop residues (grain system). Iowa.

Three two-year rotations in which two tons per acre of manure is applied.
(West Central Substation) Minn.

Fertility investigations with three-year crop rotation: The effect of manure and crop residue; the effect of rock phosphate with crop residues (grain system); the effect of rock phosphate with manure (live stock system). Iowa.

Three-year rotation experiment. Cotton; corn and peas; oats followed by peas.
(North Louisiana Experiment Station) La.

Three-year rotation of oats, clover, corn, applying six tons of manure preceding corn. (West Central Substation) Minn.

Three-year rotation of grain, alsike clover, and beans. Oreg.

Fertility investigations with four-year crop rotation: (a) The effect of various applications of manure and of crop residues; (b) the effect of rock phosphate, bone meal, acid phosphate, potassium salts, and complete commercial fertilizers with manure (live stock system); (c) the effect of the same fertilizers with crop residues (grain system, no manure); (d) the applications of complete commercial fertilizers broadcasted or applied in the hill; (e) the effect of limestone and air-slaked lime. Iowa.

Clover each four years in rotation with grain, potatoes, and beets, and each fifth year a block of alfalfa. Oreg.

Four-year rotation with peas and oats, timothy and clover. (Astoria Branch Station) Oreg.

Fertility investigations with five-year crop rotation, including alfalfa: (a) the effect of manure and crop residues; (b) the effect of rock phosphate and acid phosphate with manure (live stock system); (c) the effect of phosphates with crop residues (grain system). Iowa.

Rotations. (Cont.)

Five-year rotation of oats, clover hay, timothy, and clover hay, corn and wheat, applying ten tons manure, preceding corn. (West Central Substation) Minn.

Eight-year rotation without manure, four years cereal crop and four years alfalfa. (West Central Substation) Minn.

Rotation of corn and oats. Ohio.

Rotation of corn, oats, clover. (Strongsville) Ohio.

Rotation of corn, wheat, clover. (Germantown and Miami County) Ohio.

Rotation of corn, oats, wheat, clover. (Central and Substations) Ohio.

Rotation of corn, corn, wheat, and clover. (Madison County) Ohio.

Rotation of corn, oats, wheat, clover; timothy. (Strongsville) Ohio.

Rotation of corn, wheat, clover, timothy, timothy. (Belmont County) Ohio.

Rotation of corn, corn, oats, and clover. (Miami County) Ohio.

Rotation of corn, soy beans, and wheat. (Clermont County) Ohio.

Rotation of corn, soy beans, wheat, and clover. (Substations) Ohio.

Corn, potatoes, rye, and rowen, one to three years of grass, including one rotation with and one without legumes. R.I.

Potatoes, corn with grass and clover seeded in it and left to grow five years subsequently. R.I.

Silage corn with grass and clover seed in it, grass, oat and pea hay followed by rutabagas; cow manure with straw bedding v. planer shavings bedding, the latter with different amounts of phosphorus and of potassium, all compared with fertilizer alone. R.I.

Rotation of crops, including continuous cropping of corn, cotton, and oats, with two, three, and four year rotations with legumes planted in and between regular crops; also silage corn and crimson clover. (Starkville and Holly Springs Branch Station) Miss.

Corn and velvet beans; oats followed by cowpeas or soy beans, and cotton with oats and crimson or bur clover at the last cultivation, drilled in between the rows of cotton. (North Louisiana Experiment Station) La.

Rotation of strawberries and potatoes. (Mahoning County) Ohio.

Rotation of potatoes, wheat, clover. (Substations) Ohio.

Rotations (Cont.)

Fertilizer experiments with dark tobacco and crops grown in rotations.
(Appomattox Station) Va.

Types of rotations with and without tobacco. (Appomattox Station) Va.

Rotation of tobacco, wheat, clover. (Germantown and Miami Co.) Ohio.

Field investigations with crop rotations containing tobacco. (In cooperation with the Bureau of Plant Industry, U.S.D.A.) N.Y. State.

Rotation experiments, including two-year with soy beans, two-year with pasture, and four-year with oats, corn, and soy beans. (Rice Experiment Station) La.

Medium red clover in rotation of corn, wheat, barley, clover. (West Central Substation) Minn.

Succession of crops or rotation trials with vetches and other forage crops.
(In cooperation with the Office of Forage Crops Investigations, U.S.D.A.).
Oreg.

Rotation of sugar beets, oats, and clover. (Paulding County) Ohio.

Rotation of sweet corn, cucumbers, cabbage, and tomatoes. (Washington County and Mahoning County) Ohio.

Rotation experiment to compare yields of crops grown in one, two, and three-year rotations with and without legumes. (Swannanoa, Kingsboro, and Statesville) N.C.

Crop rotation experiments, including spring wheat, barley, potatoes; field peas continuously; spring wheat- corn- spring barley; winter wheat- summer fallow; spring wheat- barley- corn. (In cooperation with the Office of Cereal Investigations, U.S.D.A.). (Moro Branch Station) Oreg.

To determine the advisability of growing alfalfa, corn, and annual legumes in a rotation on bottom land. Okla.

Comparative use of legumes in rotation with corn. To secure comparative yields of corn grown after crops of cowpeas, soy beans, and velvet bean vines have been plowed under. (Sugar Experiment Station) La.

Flax rotations. To determine an effective rotation of crops for North Dakota, with special attention to the maximum production of flax on old land. Also rotations, with emphasis on weed control, wilt control, and the conservation of moisture. N.Dak.

Potatoes, rye as green manure for squashes, onions, wheat and rowen, grass. Fertilizer used in most cases, comparison of manure with fertilizer for corn. Different amounts of fertilizer elements and of fertilizer compared. R.I.

Rotations. (Cont.)

Rotation and fertilizer experiments with corn, sweet potatoes, and peanuts. To determine the production of corn, sweet potatoes, and peanuts in rotation and using various forms of commercial fertilizer and lime. Fla.

Rotations for dairy farms. A comparison of three types of rotations. Conn. Storrs.

Rutabagas.

Use of rye as cover crop between successive crops of rutabagas. (Northeast Demonstration Farm) Minn.

Rye.

Breeding rye. (In cooperation with the Cereal Office, U.S.D.A.). N.Y. Cornell.

Breeding work with rye. S.C.

Rye, oat, and barley breeding. Wis.

Inbreeding rye and crossing the resulting homozygous strains for the purpose of producing a more vigorous variety of rye. Ga.

Rye selfing to purify and segregate the strains. Mich.

Rye plant rows to compare the selfed strains. Mich.

Rye isolation to prevent crossing. Mich.

Menitou Island Rosen rye isolation, to provide a source of a highly improved strain of rye, produced under isolation conditions. Mich.

To produce improved varieties of spring wheat, winter wheat, rye, and oats. (In cooperation with the U.S. Department of Agriculture). Minn.

Variety test of rye. (Substations) Va.

Variety tests of wheat, spring and winter barley, oats, and rye. (North Central Branch Station) Minn.

To find a winter rye which shall be entirely hardy in Alaska. Alaska.

A test of different varieties of rye with ordinary commercial rye for seed, etc. Ala.

Variety tests with rye in rod rows only. La.

Rye variety testing to compare the yield and hardiness of the commercial strains. Mich.

Rye. (Cont.)

Cereal variety tests. To test new and standard varieties of spring wheat, oats, barley, and winter rye, as to yielding capacity, resistance to diseases, and trade value as measured by milling and baking tests. N.Dak.

Grain growing on field scale. To test barley, oats, wheat (spring and winter), winter rye and buckwheat on a field scale. Including also variety tests. Alaska.

Variety testing, breeding, acclimatization, and cultural studies of small grains. To improve the quality and yield of small grains, including winter wheat, oats, spring wheat, rye, winter barley, and winter emmer. Nebr.

Variety test of winter cereals, wheat, oats, rye, and barley. Ga.

Rye production: Varieties, breeding, and cultural methods. Ark.

Rye: Variety tests and cultural experiments. Va.

Time of seeding winter rye. (North Central Branch Station) Minn.

Date of planting rye. Mich.

Date of seeding winter wheat, winter rye, and barley. (Northwest Experiment Farm) Minn.

Rye as a pasture crop. (Valentine Substation) Nebr.

Crops to supplement rye in summer. (Valentine Substation) Nebr.

Planting rye with vetch to study the method of collecting vetch seed. Ala.

Rye, emmer, and miscellaneous grains. (Substations) Idaho.

Tests (chemical) of oats, corn, and rye. Minn.

Serradella.

Variety test of field peas, soy beans, vetch, and serradella. (North Central Branch Station) Minn.

Silage crops. (See also Feeding stuffs,- silage and silage feeding experiments.)

Study of silage crops. (Northeast Demonstration Farm) Minn.

Variety tests of silage crops. (In cooperation with the Office of Western Irrigation Agriculture Investigations, U.S.D.A.). (Hermiston Branch Station) Oreg.

Comparative tests of individual species and combinations for silage. (Astoria Branch Station) Oreg.

Silage crops. (Cont.)

Silage crops for northern Michigan. (Upper Peninsular Substation) Mich.

Comparison of various kinds of silage and roots for northern Wisconsin. Wis.

Chemical analyses of silage crops. Minn.

Crops for silage. Including corn, different varieties of sorghum, and sunflowers
Miss.

The value of silage from ordinary field corn v. large "silage corn". Ohio.

Corn variety trials for silage. (In cooperation with the Office of Forage Crop
Investigation, U.S.D.A.). Oreg.

Silage corn variety tests. Miss.

Variety tests of corn for the production of silage. (Aberdeen Substation) Idaho.

Ensilage corn variety tests. To determine the relative yield, maturity, and
adaptability of the varieties in the different sections of the State and to
compare them with other local or favorite varieties. N.H.

A study of types of corn for silage. The loss of nutrients in the process of
silage-making. The comparative feeding value of corn silage from types of
corn ranging from a type not maturing ears to a type producing practically
mature grain in the latitude of southern New York. N.Y. Cornell.

A study of silage corn and supplementary silage crops, especially sunflowers and
soy beans, including such factors as the stage at which corn is most valuable
for silage purposes per pound of dry matter; the variety which will produce
the greatest amount of dry matter per acre; the effect of an irregular stand
on the yield of corn; the productivity and adaptation of sunflowers for silage
purposes; the varieties of soy beans best suited for silage purposes. N.Y.
Cornell.

Cultural tests of corn for silage production. Idaho.

Early planting of ensilage corn. N.H.

Soft corn silage. Iowa.

Sunflowers as a silage crop. (Union Branch Station) Oreg.

Sunflowers as a silage crop for Wisconsin. Wis.

Improvement of sunflowers for silage production by selection and breeding. Idaho.

Rate of seeding sunflowers as related to yield of silage. (Aberdeen Substation)
Idaho.

Factors causing poor quality in sunflower silage. Mont.

Silage crops. (Cont.)

- A comparative test of growing corn and sunflowers for silage. Penn.
- On relative value of sunflowers and Indian corn as silage crops. Calif.
- A comparison of sunflowers and corn for yield of silage. Ohio.
- A comparison of sunflowers and corn for silage. Ga.
- To compare sunflowers with corn as a silage crop, noting insect injuries, drought resistance, and tonnage. (Valentine Substation) Nebr.
- Soy beans, yellow, as late as will produce viable seed, suitable for silage. R.I.
- A test of the practicability of growing soy beans with corn for ensilage. Penn.
- Observations on the stage of oat and vetch crop for silage. Oreg.
- The composition of sweet clover and sweet clover silage. Idaho.
- A comparison of yield of the ranker growing varieties of sorghum with standard varieties of corn for silage. Ala.
- Rape as material for silage. Iowa.
- Artichokes as a silage and forage crop. Idaho.
- Rotting of steckling beets in silos. Colo.

Sisal.

- Sisal growing: To find a profitable crop in very dry lands now unproductive. P.R.

Sorghums.

- Selective inbreeding in grain sorghums. Tex.
- Improvement of saccharin sorghum by selection. Wis.
- Sorghum variety tests. Miss., S.C., (Colby Branch Station) Kans.
- Dry-land agriculture investigations. Varietal tests of sorghums. (Garden City Branch Station) Kans.
- Varietal test with forage sorghums. (Tribune Branch Station) Kans.
- Varietal tests of sorghum, corn, and small grains. (Garden City Branch Station) Kans.

Sorghums (Cont.)

A variety test of millets, including Sudan grass and sorghum. Ohio.

Variety tests of sorghum for sirup-making. La.

Variety tests of grain sorghums. To determine the yields of different varieties of grain sorghums, as shown by competitive tests. Okla.

To determine the yields of different varieties of sweet sorghums as shown by competitive tests. Okla.

Varietal and cultural tests and breeding work with wheat, oats, barley, corn, and grain sorghums. (In cooperation with the Office of Cereal Investigations, U.S.D.A.). (Fort Hays Branch Station) Kans.

A comparison of yield of the ranker growing varieties of sorghum with standard varieties of corn for silage. Ala.

A comparison of the leading varieties of sorghum both for green and dry forage. Ala.

A comparison of the most important grain sorghums with corn for grain and forage production. Mo.

Experiments with sorghum, Sudan grass, and Spanish peanuts for forage. Mo.

A study of the varieties and methods of culture of Indian corn and the various sorghums. Ariz.

The production of sirup, grain, and forage from sorghum in Arkansas. Ark.

Japanese sugar cane v. sorghum for forage and for sirup. Ala.

A study of the formation of sucrose in the sweet sorghums. To determine which variety produces most sucrose per acre, in which variety its production is most rapid, at what stage of growth it has the highest content, the variety with the highest coefficient of purity in the juice and effect of removal of the green head on sucrose in stalk. Okla.

To determine the best method of planting grain sorghums and cowpeas together. Okla.

Tests of potash from "nitrapo" and other sources on corn and sorghum. Ala.

Chemical study of the grain sorghums. Okla.

Soy beans.

Genetic studies in soy beans. Ill.

Soy bean breeding. Ind.

Soy beans. (Cont.)

To isolate more adaptable and higher-yielding strains of cowpeas, soy beans, and mung beans for Porto Rico. P.R.

A plant-row test of selected individuals of soy beans. Ohio.

Soy bean breeding for varieties especially suited to Iowa conditions. Iowa.

Selection and varietal trials with soy beans. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.). Oreg.

Breeding and cultural work with soy beans. Idaho.

Soy bean breeding and cultural studies. Wis.

Soy bean oil work. To select a high-yielding strain of soy beans that will have a high oil content. (In cooperation with the Office of Forage Crop Investigations, U.S. Department of Agriculture). N.C.

Soy bean variety tests. Ala., Del., Ga., Miss., S.C., (Substations) Va., W. Va.

Adaptation of imported varieties of soy beans, selection of superior types, tests of yields for hay and seed of varieties. Md.

Variety test of field peas, soy beans, vetch, and serradella. (North Central Branch Station) Minn.

A study of the adaptation of the important varieties and selections of soy beans to the various soil types of the State. (In cooperation with the U.S. Department of Agriculture). Mo.

Variety trials with various farm crops, such as corn, wheat, oats, soy beans, vetch, etc. Tenn.

Soy beans: Variety tests for seed and for hay. Ala.

Variety tests of soy beans for grain and hay. (North Louisiana Experiment Station) La.

A test of varieties of soy beans grown for seed and for hay. Ohio.

Varieties of soy beans and soy beans y. oats in rotation. Penn.

A morphological classification of the varieties of soy beans. Mo.

Soy beans: Varieties, culture, and yields of hay and grain. Va.

Comparison of alfalfa and sweet clover and cowpeas and soy beans as hay crops. (Bowling Green Station) Va.

Soy beans. (Cont.)

Comparison of soy beans and cowpeas for hay and seed production. Mo.

Soy bean inoculation. N.H.

Effect of inoculation of soy bean seed on nitrogen content of plants. Wis.

Soy bean cultural tests. Iowa.

Rate of seeding and cultural methods in the production of soy beans. Ind.

Rate of planting experiments with both soy beans and corn. Tenn.

A study of methods for producing short-season hay crops after wheat and oats. Mo.

Soy beans, yellow, as late as will produce viable seed, suitable for silage. R.I.

Effect of different applications of unburned limestone on soy beans. La.

Growing corn and soy beans together. Ky.

A test of the practicability of growing soy beans with corn for ensilage. Penn.

Investigation of associated growth of soy beans and corn. Wis.

A comparison of distance apart to plant corn, corn and soy beans, and sunflowers.
Minn.

Soy bean studies, including usefulness of soy beans for feeding purposes in Iowa.
Feeding value at different stages of growth, composition at different stages of growth, its use for hay and relative feeding value as compared to ordinary hay.
To work out the value of soy beans used as a grain ration and to investigate various possible uses. Iowa.

Soy bean tests. Nebr.

Sudan grass.

The inheritance in crosses between Sudan grass and Johnson grass. To determine the mode of inheritance of the root systems in crosses between Johnson grass and Sudan grass. Ga.

Sudan grass seed studies and breeding. Iowa.

Variety trials of millet, Sudan grass, and roots. Minn.

A variety test of millets, including Sudan grass and sorghum. Ohio.

Date, rate, and methods of seeding Sudan grass. Ind.

Sudan grass. (Cont.)

Experiments with two methods of seeding Sudan grass. (Tribune Branch Station) Kans.

Sudan rate and date test. To determine the best rate and date, both in rows and close drilled, to seed Sudan grass. Okla.

Cultural experiments with Sudan grass. Idaho.

A study of the cultural requirements and adaptation of Sudan grass. To determine the adaptation of Sudan grass and ascertain the most satisfactory cultural practices. Mo.

Hay harvesting of Sudan grass. To determine at what stage of its growth it is best to cut Sudan grass for hay. Okla.

Experiments with Sudan grass, sorghum, and Spanish peanuts for forage. Mo.

Value of Sudan grass as forage crop for Wisconsin. Wis.

Nutrients in forage crops. Chemical contents of forage crops, particularly hydrocyanic acid in Sudan grass. Kans.

The composition and digestibility of Sudan grass. Iowa.

Sugar beets.

Sugar beet segregation to purify races and obtain those that may be expected to breed true. Mich.

Sugar beet beds to obtain superior individuals. Mich.

Sugar beet isolation to prevent crossing. Mich.

Sugar beet variety testing to obtain the best strains for breeding. Mich.

Sugar beet variety tests. (In cooperation with the Aberdeen Substation) Idaho, La.

Sugar beet studies: To determine best date of spring planting and best date of fall planting; to compare the furrow v. flooding methods of irrigation; to compare effect on germination of irrigating before planting and irrigation after planting. (In cooperation with the Office of Sugar Plant Investigations, B.P.I., U.S.D.A.). N.Mex.

Sugar beets: Cultural and fertilizing tests. (Scottsbluff Substation) Nebr.

Sugar beets: Selection and improvement of sugar beets for high sugar content by propagation of mother beets showing highest percentage of sugar. (Aberdeen Substation) Idaho.

Sugar beets. (Cont.)

Sugar beet seed production. (In cooperation with the Bureau of Plant Industry, U.S.D.A.). (Upper Peninsular Substation) Mich.

Commercial beet seed production. Utah.

To determine the causes that have been active in the Arkansas Valley in the prevention of a high sugar content in sugar beets. Colo.

Sunflowers.

Sunflower selfing to purify the strains. Mich.

Sunflower beds to obtain superior individuals. Mich.

Isolation of sunflowers to prevent crossing. Mich.

Plant rows of sunflowers to compare strains and find the best for increase. Mich.

Improvement of sunflowers for silage production by selection and breeding. Idaho.

Disease resistance in sunflowers. Mich.

Sunflower production from native seed. (Northeast Demonstration Farm) Minn.

Cultural experiments with sunflowers. Idaho.

Rate of seeding sunflowers as related to yield of silage. (Aberdeen Substation) Idaho.

A comparison of distance apart to plant corn, corn and soy beans, and sunflowers. Minn.

Sunflowers: To compare them with corn as a silage crop, noting insect injuries, drought resistance, and tonnage. (Valentine Substation) Nebr.

A comparison of sunflowers and corn for yield of silage. Ohio.

Sunflowers as a silage crop. (Union Branch Station) Oreg.

A comparative test of growing corn and sunflowers for silage. Penn.

Sunflowers as a silage crop for Wisconsin. Wis.

The composition of the ash of sunflowers at different periods of growth. Idaho.

The composition of sunflowers at different periods of growth. Idaho.

Sunflowers. (Cont.)

Study of the sunflower. To determine nutrient value, ash constituents, and other characteristics of the sunflower plant at different stages of growth. N.Dak.

Sweet clover. (See Clover, sweet.)

Sweet potatoes.

Progeny of single potato. To determine whether and to what extent improvement as to yield and type can be effected by selection within a given strain. N.C.

Sweet potato seed selection. To determine the relative value of seed stock from high yielding and low yielding hills (disease free stock only to be used) as regards: (a) Productivity; (b) uniformity of potatoes as to size, type, etc. To determine the relative value of vine cuttings as compared with slips for maintaining yield and type, commencing from same hill. To determine the comparative value of large and small potatoes for seed. N.C.

Sweet potato variety tests. Ala., Ky., S.C.

Sweet potato variety testing. To determine productivity, market values, keeping qualities, earliness, and quality of all varieties. N.C.

Varieties of sweet potatoes best suited to the section and also a study of the control of various diseases. Okla.

Variety, fertilizer, culture, harvesting, and curing tests. (Holly Springs Branch Station) Miss.

Fertilizer experiments with sweet potatoes. Ala.

Fertilization of sweet potatoes. Ga.

Fertilizer tests with sweet potatoes. S.C.

Sweet potato manuring tests. To determine value of farmyard manure in the culture of sweet potatoes. Virgin Islands.

Rotation and fertilizer experiments with corn, sweet potatoes, and peanuts. To determine the production of corn, sweet potatoes, and peanuts in rotation and using various forms of commercial fertilizer and lime. Fla.

Sweet potato cultural practices. To determine the comparative value of slips v. vine cuttings as regards productivity; the effect of ridging on productivity and type of potatoes; the effect of vine cuttings on yield. N.C.

A study of conditions influencing the blossoming and seeding habit of sweet potatoes. To induce the sweet potato to flower and form seed that can be used to produce new varieties. N.C.

Sweet potatoes. (Cont.)

Comparison of seed from late vine cuttings with seed from main crop draws, as regards productivity, type, and keeping quality. N.C.

A study of cultural and storage methods of the sweet potato. Ariz.

A study of the influence of the time of digging sweet potatoes upon keeping qualities. S.C.

Sweet potato curing. Ala.

A study of the factors involved in curing and shipping of sweet potatoes. Ark.

Sweet potato storage. (South Mississippi Branch Station) Miss.

To determine the best keeping varieties of sweet potatoes and the amount of shrinkage in varieties in storage. To collect notes and information on storing, curing, and operating a storage house. To study the relation of temperature, time of harvest, maturity, and frost to the keeping quality of sweet potatoes. N. C.

Sweet potato storage and storage diseases. Tex.

Nature of the physiological changes in stored sweet potatoes. Ala.

Timothy.

Breeding timothy. N.Y. Cornell.

Timothy selection. Mich.

Timothy selection: To secure a superior strain particularly suited to New Hampshire. N.H.

Timothy improvement. Penn.

The production of an improved timothy type for Minnesota. Minn.

A test of timothy strains produced by U.S. Department of Agriculture timothy breeding station at Elyria, Ohio. Ohio.

Timothy variety testing. Mich.

Tobacco.

Breeding investigations with tobacco. Conn. State.

Tobacco breeding work for improvement of cigar tobacco. Ohio.

Tobacco. (Cont.)

Sterility of hybrids of Nicotiana. Penn.

Tobacco experiment: To test Davis Zimmer hybrid. Penn.

Tobacco variety tests. Ky., (Substations) Va.

Variety test of cigar filler tobacco. Penn.

To study the different varieties of tobacco, with respect to yield and commercial quality. (In cooperation with the U.S. Department of Agriculture). N.C.

Tobacco variety and curing tests.--Cooperative. W.Va.

Variety, fertilizer, and insect enemy studies of tobacco. To determine the most desirable variety or varieties of tobacco for Guam; to study the insect pests and determine the best methods for their destruction; and to determine the fertilizer requirements of tobacco on the different soil types of Guam. Guam.

Tobacco seed production. Md.

Permanent tobacco seed bed. The practicability of maintaining the seed bed in the same place. (In cooperation with the U.S. Department of Agriculture). N.C.

Rate of transplanting tobacco. Ky.

Closer planting combined with more intensive fertilizing. To study effect on yield and quality of tobacco by planting at different thicknesses and fertilizing more heavily. (In cooperation with the U.S. Department of Agriculture). N.C.

Rotation experiments with tobacco. Ky.

Types of rotations with and without tobacco. (Appomattox Station) Va.

Field investigations with crop rotations containing tobacco. (In cooperation with the Bureau of Plant Industry, U.S.D.A.). N.Y. State.

Study of the effect on quality and yield of tobacco after other crops and maintaining the humus supply of the soil. (In cooperation with the U.S. Department of Agriculture). (Oxford and Reidsville) N.C.

Growing tobacco continuously on blue grass soil. Ky.

Effect of various systems of cropping on the yield and quality of dark leaf tobacco. (In cooperation with the Bureau of Plant Industry, U.S.D.A.). Tenn.

Effect of leaving tops on plants on the quality of cigarette tobacco. To determine whether a milder and more desirable cigarette cutter can be produced by leaving the plants untopped as is done with Turkish tobacco. (In cooperation with the U.S. Department of Agriculture). (Oxford and Reidsville) N.C.

Tobacco. (Cont.)

Crop relations, comparative effect of tobacco and other crops on yields of succeeding crops. (In cooperation with the Bureau of Plant Industry, U.S.D.A.). Md.

A study of the effects of soil reaction alone on the growth and development of tobacco. Mass.

Fertilizer tests with tobacco. Ky.

Fertility experiments with tobacco. To determine the effects of various fertilizers, used singly and in combination, on the yield and quality of the tobacco. (In cooperation with the Bureau of Plant Industry, Tobacco Investigations, U.S.D.A.). Tenn.

Fertilizer tests. To determine the correct amount, right proportions and most efficient carriers of plant food materials for tobacco in rotation. (In cooperation with the U.S. Department of Agriculture). (Oxford and Reidsville) N.C.

Fertilizer experiments with sun cured tobacco and other crops grown in rotation with it. (Bowling Green Station) Va.

Fertilizer tests with bright tobacco and crops grown in rotation. (Chatham Station) Va.

Fertilizer experiments with dark tobacco and crops grown in rotations. (Appomattox and Bowling Green Substations) Va.

Sources of ammonia used in tobacco fertilizers. (Chatham Station) Va.

Effect of liberal humus supply on bright tobacco. To study effect of humus on quality of tobacco. (In cooperation with the U.S. Department of Agriculture). (Oxford and Reidsville) N.C.

Special potash experiments with tobacco. To note effect of the addition of different kinds and amounts of potash for tobacco. (In cooperation with the U.S. Department of Agriculture). (Oxford and Reidsville) N.C.

Tobacco curing experiments. Ky.

Establishing standard grades of tobacco. To standardize grades of tobacco in view of assisting the growers in marketing their tobacco more profitably. (Substations) N.C.

Investigations relating to methods of marketing tobacco. Ky.

Maryland export tobacco investigations. To improve by breeding and selection, to determine the best fertilizers, best systems of crop rotation, methods of growing, curing and handling and control of important diseases. Md.

Tobacco. (Cont.)

Relation of chemical characters to quality in leaf tobacco. Ky.

Variety tests, general.

Crop variety test. Tex.

Variety trials of various farm crops. Tenn.

Variety trials with various farm crops, such as corn, wheat, oats, soy beans, cotton, etc. Tenn.

Testing varieties of farm crops. To determine the relative merits of all the more or less promising varieties of farm crops that can be found, and which may be of interest to Indiana agriculture. Ind.

A varietal and cultural test of grain, grasses, and miscellaneous crops. Ariz.

Field crop investigations under both dry farming and irrigation. Varietal trials with wheat, oats, barley, rye, field peas, corn, alfalfa, sunflowers, grasses, potatoes, and other minor crops. (In cooperation with the Office of Cereal Investigations, U.S.D.A.). (Burns Branch Station) Oreg.

Velvet beans.

Velvet bean variety tests. Ala., Ga., S.C.

Variety tests of field corn and velvet beans. Fla.

Corn and velvet beans: Different methods of planting. La.

A biological study of the nutritive value of the velvet bean. With special reference to its amino acid deficiencies and its content of fat-soluble vitamin, water-soluble vitamins and minerals. Ark.

A chemical study of the velvet bean. Ala.

Vetch.

Vetch production: Varieties, breeding, and harvesting. Ark.

Vetch variety tests. Ala., Miss.

Variety test of field peas, soy beans, vetch, and serradella. (North Central Branch Station) Minn.

Testing vetches for yields of hay. Va.

Vetch. (Cont.)

Varietal trials with vetches for forage and seed. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.). Oreg.

Cultural trials with vetches and related plants and with horse beans. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.). Oreg.

Nursery trials with vetches and related plants, new vetch varieties, and horse bean varieties. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.). Oreg.

Succession of crops or rotation trials with vetches and other forage crops. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.). Oreg.

Oats and hairy vetch sown together. (North Louisiana Experiment Station) La.

Planting rye with vetch to study the method of collecting vetch seed. Ala.

Observations on the stage of oat and vetch crop for silage. Oreg.

Wheat. (See also Foods and Human Nutrition- Milling and baking.)

Genetics and breeding.

Mendelian studies with wheat and oats. N.Y. Cornell.

Wheat production: Breeding. Ark.

Wheat breeding. Ind., Ky., (In cooperation with Cereal Office, U.S.D.A.) N.Y. Cornell, S.C., Wis.

Cereal breeding investigations, primarily with wheat. (In cooperation with the Offices of Cereal and of Forage Crop Investigations, U.S.D.A.). (More Branch Station) Oreg.

Wheat breeding investigations, including the improvement of commercial varieties by the pure line method of breeding and hybridization and subsequent selection. To improve quality and increase yield of winter wheat for Missouri. Mo.

Practical wheat breeding. The production of a wheat variety combining the stem rust resistance (and baking qualities) of Kota, with certain desirable characters of other varieties, such as strength of straw and lack of awns of Marquis. N.Dak.

Wheat breeding, to develop, if possible, both spring and winter varieties which shall be suited to the Alaska climate. Alaska.

Breeding wheat for increased yield, better quality and hardiness. Iowa.

Wheat. (Cont.)

To obtain more hardy strains of winter wheat. Mich.

To produce improved varieties of spring wheat, winter wheat, rye, and oats.
(In cooperation with the U.S. Department of Agriculture). Minn.

Wheat crossing to combine better characters. Mich.

Studies of pure lines in wheat of the Kubanka and Kota varieties. To obtain an improved strain (pure line) or mixture of such as an improvement over the parent bulk variety and to obtain data upon the amount of correlation and variation which may exist among the various pure lines of a variety. N.Dak.

Study of variation in pure line of wheat with respect to size of kernel and its effect upon yield. Ohio.

Wheat improvement through crossing and segregation. Mich.

Wheat improvement. (Substations) Idaho, Penn.

Improvement of wheat by hybridization and selection. (In cooperation with the Bureau of Plant Industry, U.S.D.A.). Tenn.

Comparisons of pure line selection with hybridization as a method of improvement in wheat. Ohio.

Pure line selection and hybridizing experiments with wheat, in order to secure a strain that will maintain its hard qualities under Maine conditions. (Aroostook Farm) Me.

Inheritance of stem rust resistance of wheat. N.Dak.

To determine the mode of inheritance of rust resistance in wheat and to produce rust resistant varieties. (In cooperation with the Office of Cereal Investigations, U.S.D.A.). Minn.

Inheritance of variations induced by difference in nutrition of wheat.
N.Y. Cornell.

Work in winter wheat. To test hardiest strains of winter wheat and by breeding these to develop new strains sufficiently hardy for North Dakota conditions.
N.Dak.

Variety tests.

Wheat variety tests. Ala., Del., Ky., N.Y. Cornell, S.C., (Substations) Va., W. Va.

A variety test of wheat, in cooperation with the experiment stations of North Carolina, South Carolina, and Georgia, in which the most promising varieties found by the different stations are being tested under uniform methods at each station. Ala.

Wheat. (Cont.)

Wheat production: Variety selection. Ark.

A study of the varieties of wheat with a view to their improvement. Penn.

Wheat variety tests and improvement by selection and breeding. Md.

Wheat variety tests: To find an early spring wheat and a hardy winter wheat.
Alaska.

To determine the yields of different varieties of wheat as shown by competitive tests. Okla.

A test of wheat varieties, many of which are pure line selections for (a) yield, (b) quality, (c) disease resistance, (d) stiffness of straw, (e) hardness, (f) adaptability. Ohio.

Wheat variety tests to obtain the best yielders and to continue the work with the best strains. Mich.

A survey of varieties of winter wheat in Pennsylvania. Penn.

Wheat: Variety testing and head selection for early maturity. Wyo.

Varietal test with winter wheats. (Colby Branch Station) Kans.

Varietal test with spring wheats. (Colby Branch Station) Kans.

Cereal variety tests. To test new and standard varieties of spring wheat, oats, barley, winter rye, as to yielding capacity, resistance to disease, trade value as measured by milling and baking tests. N.Dak.

Varietal trials and cultural experiments with small grains, wheat, barley, and oats. Calif.

Variety test of winter cereals, wheat, oats, rye, and barley. Ga.

Variety tests with wheat, oats, and barley. (Aberdeen Substation) Idaho.

Variety tests with wheat, oats, and barley. (Sandpoint Substation) Idaho.

Variety tests with wheat, oats, barley, and miscellaneous grains under dry land and irrigation. (High Altitude Substation) Idaho.

Varietal and cultural tests and breeding work with wheat, oats, barley, corn, and grain sorghums. (In cooperation with the Office of Cereal Investigations, U.S.D.A.). (Fort Hays Branch Station) Kans.

Variety tests of wheat, spring and winter barley, oats, and rye. (North Central Branch Station) Minn.

Wheat. (Cont.)

Varietal trials, including wheat, barley, oats, field peas, corn, and potatoes. (In cooperation with the Offices of Cereal Investigations and Forage Crop Investigations, U.S.D.A.). (Moro Branch Station) Oreg.

Varietal tests with wheat, barley, and oats. (Union Branch Station) Oreg.

Varietal trials of winter and spring grains, including wheat, oats, and barley. (In cooperation with the Office of Cereal Investigations, U.S.D.A.) Oreg.

Variety trials with various farm crops, such as corn, wheat, oats, soy beans, cotton, etc. Tenn.

Variety tests of wheat in rod rows only. La.

Variety testing, breeding, acclimatization and cultural studies of small grains. To improve the quality and yield of small grains, including winter wheat, oats, spring wheat, rye, winter barley, and winter emmer. Nebr.

Wheat: Variety tests and cultural experiments. Va.

Winter wheat: Variety and cultural studies. Nebr.

Plant rows in wheat, to find superior strains to enter variety series. Mich.

Culture experiments.

Small grain culture work: To study dates and rates of seeding wheat and oats at the Piedmont Branch Station, and oats at the Coastal Plain Branch Station. (In cooperation with the Office of Cereal Investigations, U.S.D.A.). N.C.

Wheat production: Cultural methods. Ark.

Rate, date, and depth of seeding winter wheat on dry land. (High Altitude Substation) Idaho.

Rate and date of sowing experiments, primarily with wheat. (In cooperation with the Offices of Cereal and of Forage Crop Investigations, U.S.D.A.). (Moro Branch Station) Oreg.

Rates and methods of seeding wheat. Ind.

Wheat: A test of rate, time, and method of seeding. Ohio.

Rate of seeding wheat. Ky.

To determine the best rate to sow wheat. Mich.

Rate of seeding wheat, oats, barley, and corn. (Northwest Experiment Farm) Minn.

Rates of seeding spring grain, wheat, oats, and barley. Mont.

Wheat. (Cont.)

Date of planting wheat. Mich.

Date of seeding winter wheat, winter rye, and barley. (Northwest Experiment Farm) Minn.

Date of seeding spring grain, wheat, oats, and barley. Mont.

Date-of-planting experiments with wheat, oats, and barley. Tenn.

Manner of seeding wheat. Ky.

Tillage investigations: Wheat seed bed preparation. Kans.

The treatment of soy bean stubble in preparation of a seed bed of wheat. Mo.

To determine the difference as observed in yields between continuous culture and crop rotation with special reference to the leading crops of Oklahoma and under Oklahoma conditions, wheat being the index crop. Okla.

Test of furrow method of seeding wheat; grain varietal tests; cultivation tests of corn; etc. Kans.

Experiments with the furrow method of seeding winter wheat. (Colby and Tribune Branch Stations) Kans.

Continuous cropping plats of oats, barley, wheat. Two tons manure each year per acre. (West Central Substation) Minn.

Fertilizer tests.

Fertilizer experiment with wheat. (Martinsville and Staunton Substations) Va.

Study of fertilizer formulas and crop yields in wheat and corn. Del.

Differences in the extent to which different types of wheat respond to various kinds and quantities of plant food. Del.

Use of nitrate of soda on wheat. Ky.

Chemical studies.

Tests (chemical) of wheat from Farm Crops section. Minn.

Comparative study of Durum, Poulard, and bread wheats. Factors controlling milling and baking qualities in wheat. Ariz.

Yield, composition, and quality of Montana wheats. Chemical analysis, milling and baking tests. Mont.

Wheat. (Cont.)

The effect of available nitrogen upon the protein content and yield of wheat. Idaho.

Influence of cultivation on nitrogen content and yield of wheat. Wash.

The protein content of wheat and nitrogen content of the soil, when cropped continuously to wheat and when cropped under a definite rotation system. Idaho.

Miscellaneous.

Grain growing on field scale. To test barley, oats, and wheat (spring and winter), winter rye and buckwheat on a field scale. Including also variety tests. Alaska.

Investigation of the practicability of wheat growing in Porto Rico. P.R.

Multiplication and comparison trials of winter wheat selections. (In cooperation with the Office of Cereal Investigations, U.S.D.A.). Oreg.

To learn by careful statistical methods the comparative value of individual seeds of wheat of various weight and of seed from which part of the endosperm has been removed. Minn.

The effect of straw mulch to wheat upon the yield of wheat and the following clover. Ohio.

An investigation of the "hessian-fly-resistant" qualities of different varieties of wheat. Mo.

Winter killing of wheat. Methods of preventing or reducing the damage. Mont.

Cereal investigations. (U.S. wheat classification nursery). Oreg.

Wheat production and storage investigations. Iowa.

Studies of farm storage factors in the marketing of wheat. Kans.

Wheat storage and shrinkage investigations: Involves the physical conditions of grain storage. Kans.

Examination and mechanical analyses of wheat and screenings. Minn.

Wheat beds and centgeners to obtain superior plants. Mich.

A study of a cross of wheat and spelt as to resistance to stinking smut. Ohio.

Wheat experiments. Cytological basis for cross sterility. Me.

Effect of stage of maturity at harvest upon the germination power of wheat, oats, and barley seed. Wyo.

Wheat. (Cont.)

Rate of harvesting v. germination of wheat. Why weak germination occurs soon after threshing and how long this continues. Mont.

Wheat, multiplication. Ala.

Wheat increases for distribution. Mich.

Yellow-berry in Montana wheat. Cause and control. Mont.

Yellow-berry in wheat. The cause of yellow-berry in Turkey Red wheat in the Columbia Basin. (Branch Stations) Oreg.

Effect of fall v. spring seeding of timothy upon yield of wheat. Ohio.

Relation of cowpea growing to wheat production on continuously cropped land. Mo.

Sterile spikelets in wheat. Del.

Studies on wheat sterility. Analysis of the cellular structure of hybrids, to discover the reason for the degeneration of hybrid germ cells in sterile plants. (Highmoor Farm) Me.

Wheat investigations and improvement. Tex.

Miscellaneous.

Miscellaneous experiments. Ky.

Crops relation experiment. (In cooperation with the Bureau of Plant Industry, U.S.D.A.). (Bowling Green Station) Va.

New or uncommon crop investigations. Iowa.

Studies in field technique. Conn. Storrs.

Effect of formalin treatment on yield. (Northeast Demonstration Farm) Minn.

Growth control by means of intercropping. (Market Garden Field Station) Mass.

Varietal and cultural tests with most of the important crops, obtaining data for particular conditions and localities. Ariz.

Root crop investigations. (Upper Peninsular Substation) Mich.

Seeding in oats with clovers v. seeding with clovers, alfalfa, and orchard grass. R.I.

Effect of permanent cropping. Including corn and cowpeas, corn and soy beans, corn and velvet beans, cotton and Lespedeza striata (Japan clover) La.

HORTICULTURE.

Almonds.

Pecan, English walnut, and almond experiment. (1) To ascertain whether New Mexico climatic and soil conditions are suitable for the growing of these nut trees; (2) to study the different methods of preventing winter injury to the trees; and (3) an investigation on originating, if possible, a late blooming almond. N.Mex.

Apples.

Genetics and breeding.

Study of heredity in apple crosses. Me.

Apple breeding. Md., Oreg., Idaho.

Breeding apples for late blooming habit. Mo.

Apple breeding, to produce, if possible, varieties that will mature in Alaska. Alaska.

Study of heredity in the apple, the unit characters or groups of characters which follow Mendel's law, and the application of the principles of breeding in development of desirable winter varieties. Iowa.

Investigations of the chemical composition of apples, in relation to apple breeding problems. Iowa.

Breeding work with apples. For the purpose of studying the laws of inheritance in apples and of producing new types of fruit. Studies on self-sterility experiments on the mutual influence of stock and scion. (Highmoor Farm) Me.

Fruit breeding, especially apples and strawberries. Nebr.

Breeding experiments with apples. Breeding of late blooming varieties. Va.

Apple experiments. Study of self and cross sterility in leading Maine varieties. Me.

Principles relating to transmission of characters in the apple and peach as affected by selection and by crossing. Ill.

Bud selection and performance records with Baldwin apples and grapes. (In co-operation with the Office of Pomology, U.S.D.A.). Mich.

Bud variation and value of pedigreed nursery stock. Me.

A study of Xenia in apples and of the factors which influence the fertility and sterility of apple varieties. Ark.

Apples. (Cont.)

Variety tests.

Apple variety test. Ala., Del., Md., S.C.

Apple variety tests. To sift them by testing and keeping the best. Alaska.

Variety orchard of apples and miscellaneous tree fruits. Ky.

Apple orchard experiment with varieties. Penn.

Apples: Variety studies, including field observations and orchard tests to gain information relative to their behavior, commercial possibilities and adaptation for the home orchard or garden. Va.

Test of a number of new varieties of apples and of the one and two-year-old apple graft. (1) The testing of twenty new varieties of apples such as the Delicious, King David, Champion, Apple of Commerce, Stayman Winesap, etc; (2) to secure data on the longevity of these varieties upon very sandy soil; (3) to ascertain whether the one-year-old or two-year-old apple graft is the better for planting under southern New Mexico conditions. N. Mex.

New apples for Wisconsin. Wis.

Apple experiments: Production of new varieties from seedlings. Me.

Cultural experiments.

Variety and pruning tests of apples. Miss.

Cultural test of apples and crabs. (Northwest Experiment Farm) Minn.

Cultural methods with apples. Penn.

Apple orchard experiment- cultural methods. Penn.

Investigations relating to the effect of various systems of culture for growing young apple trees, in so far as it effects growth and earliness of bearing. Mich.

Fertilizer tests.

Fertilizers for apples. N.Y. State.

Plant food studies with apples. N.J.

Apple orchard experiment with fertilizers. Penn.

Fertilizers for apples and peaches. W. Va.

Apples. (Cont.)

Influence of fertilizers on the yield and quality of apples; influence of cultural methods with and without fertilizers on yield and quality of apples. Penn.

Influence of fertilizer applications upon the yield, growth, and other physiological functions of the apple grown in different soils. Penn.

Response of apple trees to fertilizers under different soil conditions. Va.

Influence of fertilizers on yield and quality of apples. Penn.

Humus and its relations to the physiological activities of the apple. To study different methods of handling orchard soils as shown by the effect on yield of fruit and longevity of the trees. Iowa.

The influence of nitrogen, potash, and phosphoric acid in apple production. Del.

To study the effect of nitrogenous fertilizers under different conditions and the physiological changes resulting from these on the applications to vegetative growth and fruit production of apple trees in their unfruitful condition. Mich.

Pruning.

Investigations on the pruning of apple trees. Iowa.

Experiments in pruning apples. Mass.

Pruning apples, pears, and small fruits. Nebr.

Physiological effect of pruning apple trees. W.Va.

A comparative test of little and much-pruned apple. N.Y. State.

The relation of pruning to production with apples. Ohio.

Kind and amount of pruning for apple trees in different conditions of vigor. Va.

Apple pruning experiment. Including pruning to vase-shaped trees, to semi-leaders, to leaders and summer pruned. N.H.

To determine the comparative value of different systems and different amounts of pruning with apple trees. (Swannanoa) N.C.

Test of pruning methods on the North Spy and other varieties. Mass.

A study of the effect of heading back and not heading back the annual growth in comparison with unpruned apple trees. N.J.

Apples. (cont.)

Pruning the apple: Fall and spring pruning with a comparison of shoot growth and healing of wounds. Minn.

The effect of different styles of pruning on the percentage of apple blossoms that set fruit. N.Y. Cornell.

Effect of pruning and nitrogen fertilizer upon the off-year production of Wealthy apple trees. Wis.

The effect of pruning on various horticultural crops including grapes and apples. Mich.

Spraying and dusting.

Spraying of apple orchards. Iowa.

Experimental apple spraying. To determine the comparative value of Bordeaux mixture, commercial lime sulphur, and sulphur dust in controlling apple scab and other diseases of the apple. Minn.

Dusting apple and peach trees for the control of insects and diseases. Md.

Fruit spur studies.

Apple variety fruit spur study. Mass.

Factors influencing the functioning of apple fruit spurs, with reference to biennial fruiting. Wis.

A study of fruit bud formation in the apple. Del.

Causes and means of control of fruit bud formation on the apple. N.H.

Set and development of fruit. Me.

Stock and scion studies.

Apple experiments. Effect of stock on scion. Me.

The hardiness of scion and seedling roots of the apple. N.Y. Cornell.

A study of the affinity between the apple scion and the pear stock. To ascertain if the pear root, which is immune to injury by the woolly aphis, is a suitable stock on which to bud or graft the apple. N.Mex.

Orchard stocks for apples. Iowa.

Hardy stock for apples. Colo.

Apples. (Cont.)

Producing apple stocks by cuttings. Md.

Interrelation of stock and scion in apples. Mass.

Propagation of apple, sweet cherry, and walnut by pretreatment of scion wood in place. Penn.

Apple orchard experiments, selection and stocks. Penn.

Miscellaneous.

A study of the nature, causes, and prevention of winter injury to fruits, with special reference to the apple, including the root system. N.H.

Climatic injury with special reference to apple and other fruit trees. Wis.

Relation of orchard practices to winter injury of apple trees. N.Y. State.

The freezing point of various apple tissues. N.Y. Cornell.

Apple thinning. To determine the value of apple thinning as to the size of the fruit and the value on fruit bud formation. (Swannanoa and Statesville) N.C.

Time of picking fruit. (Spitzenberg apples and De Anjon pears under study). (Hood River Branch Station) Oreg.

Rate of growth of fruits: Apples, pears, and peaches. N.J.

Apple experiments. Relation of yield, type, and growth (in Ben Davis orchard of 1,200 trees). Me.

Growth, yield, and other data on apple trees. (Highmoor Farm) Me.

One and two-year-old tree test. To determine which is the best for planting in Oklahoma, one or two-year-old apple trees. Okla.

Pollination of the apple. Studies of the causes leading to the reported self-sterility of some varieties and of the possible benefits derived from cross-pollination. W.Va.

Working out the anatomy and histology of the apple, Pyrus malus, with the idea of bringing together a complete account of this one plant which can be used as a reference in considering the structure of this and allied species. N.Y. Cornell.

A comparison of the growth of piece root graft from root systems, from weak and from vigorous apple trees. N.Y. Cornell.

Apples. (Cont.)

A study of the Baldwin apple. N.Y. State.

Apple orcharding trials; comparative varietal studies; storage endurance. Long-time studies of a 40-variety apple orchard as to growth, yields, winter injuries, storage endurance, etc. Vt.

Factors that influence the size and water supply of apples, and their relation to the occurrence of stippen. N.Y. Cornell.

Germination of apple seeds and the relation of vigor of seedlings to variation in size of apples. N.Y. Cornell.

The effect of the amount of pollination on the size and shape of the apples. Iowa.

To test the commercial production of early apples in eastern North Carolina. To determine the most profitable varieties of summer apples. N.C.

Test of cover crops for apple orchards. Mass.

Apple orchard experiment with cover crops. Penn.

Commercial value of dwarf apple trees. Va.

Experiments with apples and demonstration orchard at Lincoln Institute. Ky.

Apple orchard survey. (Hood River Branch Station) Oreg.

Disease resistance in apple trees. Study of relative resistance and determination of factors operating to cause or modify resistance to diseases of the wood or bark. Ark.

Cold storage for Iowa apples. Iowa.

Study of factors which influence production, storing, and shipping of apples. Ark.

The keeping qualities of apples in cold storage as affected by the health and vigor of trees. Calif.

Apricots.

Apricot pruning. Calif.

Asparagus.

Improvement of Martha Washington asparagus. (Market Garden Field Station) Mass.

Asparagus. (Cont.)

Value of asparagus seed selection for disease resistance. Penn.

Plant food requirements of asparagus. Md.

A study of the comparative value of coarse salt v. nitrate of soda in the commercial production of asparagus and the effect of the time of application. Penn.

Beans.

Bean experiments. Color and pattern inheritance. Me.

Breeding field and garden beans for disease resistance. N.Y. Cornell.

The breeding of varieties of beans resistant to the various diseases of the bean. N.Y. Cornell.

To produce, by crossing, strains of beans resistant to bacterial blight. N.Y. State.

Bean experiments. Breeding and selecting for superior lines. Me.

Bean experiments. Perpetuation and testing of selected high yielding or high-quality lines. Me.

Bean breeding for interior dry-land conditions in California. Calif.

Selection within pure lines of oats and beans. N.Y. Cornell.

Breeding and selection of vegetables. Including the Alaska pea, Refugee bean, and Hubbard squash. Minn.

Improvement of beans grown for canning. Wis.

Garden field bean and pea investigations. Variety tests. (Aberdeen Substation) Idaho.

Variety tests of field and garden beans. (Valentine Substation) Nebr.

Variety test of beans. To determine the varieties best adapted for planting in the State, with special reference to their resistance to blight. Okla.

Work with beans. Variety tests and selection to secure new and improved strains with special attention to the production of disease resisting varieties. (Highmoor Farm) Me.

Variety test of beans. To determine the adaptability of imported bean varieties to local conditions. P.R.

Beans. (Cont.)

Bean experiments. Disease resistance. Me.

Disease resistance studies with beans, tomatoes, and cabbage. Ohio.

Seed bean investigations. (Aberdeen Substation) Idaho.

Cause and prevention of sclerema and hardshell in beans. N.Y. State.

A study of the factors involved in the production and shipping of beans. Ark.

Native beans of the Southwest. To produce an edible field bean which can be successfully grown as a summer crop. Also the manner of inheritance of the various economic characters in beans. Ariz.

The production of dry beans. Iowa.

Experiments with garden beans. Idaho.

Beets.

Studies of the germination of beet seed. N.J.

Blackberries.

Mendel's law in relation to raspberry and blackberry hybrids. Wash.

Mendelism in the hybrids of blackberries and raspberries, particularly with reference to leaf structure and habits of growth. Wash.

Plant breeding, using blackberries, dewberries, and raspberries (genus Rubus). Tex.

Variety test of bush fruit, including currants, gooseberries, raspberries, and blackberries. Md.

Fertilization and culture experiments with raspberry and blackberry. N.H.

Small fruit experiment. To collect phenological data on a number of different varieties of strawberries, blackberries, raspberries, currants and loganberries; to ascertain, if possible, the best varieties of these different fruits for commercial and home plantations. N.Mex.

Blueberries.

Blueberries for large and abundant fruit. R.I.

Blueberry culture. Minn.

Blueberries. (Cont.)

Culture test of blueberries. To learn the best methods of growing. Alaska.

Blueberry culture as a possible new industry for Massachusetts; as a possible substitute for cranberries on some bogs. (Cranberry Substation) Mass.

Broccoli.

Broccoli investigations. Comparative trials of 13 strains of broccoli as to earliness, yield, quality, and hardiness. Oreg.

Cabbage.

A study of the heredity of certain head characters in Volga cabbage. Del.

Breeding cabbage. N.Y. Cornell.

Cabbage seed selection for disease resistance. Mo.

Early cabbage: The relation of seed selection to earliness, yield, and uniformity of type. Penn.

Development of a yellows-resistant early cabbage. To develop yellows-resistant strains of early variety of cabbage, viz: Copenhagen, Jersey Wakefield and Charleston Wakefield. Ind.

Cabbage variety tests. (Swannanoa) N.C.

Planting date of cabbage. (Swannanoa) N.C.

A study of the commercial strains of Bonny Best and Chalks Jewel tomatoes, and Copenhagen market cabbage, to locate superior strains of all desirable qualities. N.Y. Cornell.

Relative value of the most extensively grown varieties of cabbage. Penn.

Late cabbage. The relation of seed selection to size and solidity of heads, yield, and uniformity of type. Penn.

The relative value of varieties of late cabbage for different purposes. Penn.

Disease resistance studies with beans, tomatoes, and cabbage. Ohio.

A study of the fertilizer requirement of cabbage and tomatoes. Penn.

Annual growing of late cabbages on same land, with heavy liming to repel club root. R.I.

Cabbage. (Cont.)

Experiments to determine the shrinkage in yields of cabbage as a result of attacks by the cabbage aphid and cost of spraying to secure efficient control. N.Y. State.

A study of the root development of cabbage seedlings as influenced by culture and environment previous to the final transplanting. Penn.

Suitability of some of the islands or points on the bay or the ocean for the production of cabbage seed. Md.

Cantaloups.

A study of factors involved in the production and shipping of cantaloups. Ark.

Carrots.

Production studies with carrot and parsnip seed growing. (Aberdeen Substation) Idaho.

Celery.

Systematic study of celery varieties. Classification and descriptions of existing varieties of celery. N.Y. Cornell.

Studies of the germination of celery seed. N.J.

A study of the causes of premature development of seed stalks of celery. N.Y. Cornell.

Experiments with celery: The influence of size of seed. Penn.

Celery investigations. Ky.

Cherries.

Cherry breeding investigation. Oreg.

Cherry variety tests. To select the hardier ones. Alaska.

Varietal studies of cherries. Del.

Variety test of sweet and sour cherries and of European, Native and Japanese plums. (1) To test a number of the newer varieties of these different fruits; (2) to ascertain why the sweet cherries are not successful in New Mexico. N. Mex.

Cherries. (Cont.)

Cherry, plum, and peach culture. Md.

To compare clean culture v. sod in a cherry orchard. Mich.

Relation of pollination by bees to set of cherries. Wis.

A study of cherry pollination. Idaho.

A study of the factors affecting the set of cherries. Wis.

Study of winter injury of cherry blossom buds. Wis.

A test of cherry stocks. N.Y. State.

Cherry stocks. The effect of various stocks on the growth and yield of trees. Mich.

To study the interrelations of stock and scion in cherry graftage. Vt.

Propagation of apple, sweet cherry, and walnut by pretreatment of scion wood in place. Penn.

Citrus. (See also Rural economics- Cost of production.)

The breeding and improvement of citrus fruit. Calif.

Observation and testing of various citrus hybrids. (In cooperation with the Bureau of Plant Industry, U.S.D.A.). Fla.

Citrus fruits: A study of cultural practices, including varietal tests, bud selection studies, methods of pruning, propagation, soil improvement by use of cover crops, time and method of planting, effect of stable manure and commercial fertilizers; and a study of effect of temperature and atmospheric humidity. Ariz.

Effect of pruning, tillage, and nitrate of soda on a frost damaged Satsuma orchard. Ala.

A study of the fertilizer requirements of citrus fruits. Calif.

Cooperative field trials of fertilizers and green manure crops with citrus trees. Calif.

Determination of the effect of various phosphoric acid carriers on the growth and production of citrus trees. Fla.

Determination of the effect of varying amounts of potash on the composition of oranges. Fla.

Citrus. (Cont.)

A physiological study of the effect of pruning upon the growth and productiveness of citrus trees and other horticultural plants grown under irrigation in arid regions in southern California. Calif.

The effect of different stocks on commercial species and varieties of citrus. Calif.

To determine the influence of soil, environment, and general treatment on stock and variety measured by the size and health of the tree and the quantity and quality of citrus fruits. P.R.

Experiment in the management of old groves. Calif.

Planning, planting, and early care of a citrus orchard for future experimental work. Calif.

Citrus survey. Calif.

Survey of situation of the citrus products and by-products industries in southern California. Calif.

Coffee.

Coffee variety tests. To find coffee of good flavor which may be more prolific or more resistant to insect attacks, disease or adverse conditions of soil or climate than is the coffee grown here at present. P.R.

To determine what fertilizers can be applied with profit to coffee plantations in Porto Rico. P.R.

To determine if sulphate of ammonia will be effective in increasing coffee yields where nitrate of soda has failed to do so. P.R.

To assist in the development of the coffee industry of the Island. Guam.

Collards.

Breeding a better type of collard. Ga.

Cranberries.

Culture test of cranberries. To learn how best to grow them. Alaska.

Study of the cultivation of the high bush cranberry (Viburnum opulus). Mass.

Cranberry bog drainage. (Cranberry Substation) Mass.

Cranberries. (Cont.)

Studies of cranberry storage and shipping conditions. (Cranberry Substation) Mas.

Investigations of cranberry problems. To determine the underlying principles of cranberry production. N.J.

Cucumbers.

Training of greenhouse cucumbers. N.Y. Cornell.

Currants.

Currant breeding. To secure new varieties suited to the Alaska climate. Alaska.

Propagation and selection of small wild fruit. To find desirable plants of red raspberries and red currants. Alaska.

Currant variety test. To find varieties best suited to Alaska. Alaska.

A variety test of currants. Ohio.

Currants: Variety studies, including field observations and orchard tests to gain information relative to their behavior, commercial possibilities and adaptation for the home orchard or garden. Va.

Variety test of bush fruit, including currants, gooseberries, raspberries, and blackberries. Md.

Study of currants as to hardiness and fruitfulness. Wis.

To collect phenological data on a number of different varieties of strawberries, blackberries, raspberries, currants, and loganberries; to ascertain, if possible, the best varieties of these different fruits for commercial and home plantations. N.Mex.

Dewberries.

Plant breeding, using blackberries, dewberries, and raspberries (genus Rubus). Tex.

Cultural practices with dewberries. To study cultural practices in connection with dewberries and best method of growing and handling this crop in the Coastal Plain. N.C.

Eggplants.

To combine the adaptability of the native eggplant with the improved size and quality of the mainland varieties. P.R.

Figs.

Fig variety tests. Miss. F.M.

Filberts.

Filbert pollination and breeding investigations. Including crosses and self-pollination of five varieties for self-fertility and self-sterility studies. Oreg.

Floriculture.

Greenhouse studies on soil sterilization and fertilizer studies with chrysanthemums, carnations, sweet peas, and roses. Ala.

To determine the best varieties of perennial and annual flowers and how they can best be grown. N.Dak.

Variety tests of annual flowers. To find annual flowers of easy culture best suited for farmstead ornamentation. La.

Carnation breeding experiments. To improve and extend the list of commercial varieties and to study the inheritance of color. N.J.

Selection of carnation and rose plants. To determine whether production can be increased or decreased by this means. Ill.

Carnation culture. N.J.

Influence of physical soil factors and of various chemicals upon the growth of carnations. R.I.

Greenhouse projects. A study of some of the causes of the bursting of the carnation calyx with special reference to its inherited character. Md.

A dahlia trial garden. Calif.

Variation in the common daisy. N.Y. Cornell.

Geranium varieties. Md.

Variety tests of gladioli. N.Y. Cornell.

Variety tests of pogon irises. N.Y. Cornell.

Study of the germination of orchid seed. The conditions and factors which influence seed germination and the influence of the fungus which seems essential in the germination process. Ill.

Floriculture. (Cont.)

Germination studies with seed of orchids. N.Y. Cornell.

The effect of some fungi parasitic upon orchid roots on the germination of orchid seeds. N.Y. Cornell.

Studies with peonies. N.Y. Cornell.

Variety tests of perennial phlox. N.Y. Cornell.

Hardy primulas, species, types, and varieties of. N.Y. Cornell.

Rose breeding (R. rugosa). To produce new varieties. Alaska.

Breeding hardy roses. N.Y. Cornell.

Cross pollination of roses. S.Dak.

Rose culture. N.J.

Rose studies: A study of the hardiness and adaptability of different varieties and types of roses; a study of stocks for roses; a study of the development of an American type of rose; methods of winter protection and cultural methods. N.Y. Cornell.

Variety tests of winter-flowering and garden sweet peas. N.Y. Cornell.

Greenhouse projects. Testing the difference between seed of the Spencer type of winter flowering sweet pea grown in the greenhouse and outdoors in California. Md.

Sweet pea bud drop investigations. To determine the effect of fertilizers and moisture on sweet pea bud drop; the effect of light; the effect of humidity. Ind.

Greenhouse projects. (a) How to get seed of the ten-weeks stock (Malthiola ican annua) to produce a large per cent of double flowers. Md.

Asexual inheritance in the violet. N.Y. State.

Fruit-bud studies.

Fruit-bud formation and development. Calif.

Causes and means of control of fruit-bud formation on the apple. N.H.

Fruit-bud development of fruit trees as influenced by treatment and previous crops. To determine and record the behavior of individual fruit-producing spurs and branches through a series of years; to determine factors favoring or opposing fruit bud formation on these parts as influenced by previous bearing, thinning fruit, pruning, tillage, girding, fertilizers, etc. Mo.

Fruit-bud studies. (Cont.)

Effect of cultural operations and fertilizers in modifying the development of fruit buds and their resistance to extreme cold. Okla.

Effect of soil environment on fruit bud formation. Va.

Studies of fruit bud formation and of orchard cover crops. Kans.

Pruning as a factor in bud formation and differentiation. To determine the fundamental causes of fruit-bud formation and differentiation as influenced by the time and manner of pruning. Oreg.

Statistical study of the location, number, and arrangement of fruit buds of peaches under different soil treatments in their relation to growth and metabolism of fruits. Ill.

Fruits, general. (See also Rural economics--Cost of production.)

Inheritance of fruit characters. Minn.

Inheritance of characters in tree, vine, and bush fruits. N.Y. State.

Breeding work with fruits and vegetables. S.C.

Fruit and vegetable breeding, selection, and testing. Ark.

A study of the variations and heritability of variations in fruit trees. N.Y. State.

Minor work with fruits. Varieties and breeding. (Talent Branch Station) Oreg.

Breeding experiments with all tree, bush, and vine fruits that will grow in this climate. N.Y. State.

Breeding hardy fruits. To develop by seedlings and crosses between wild and tame species, varieties better adapted to North Dakota than those now existing. N. Dak.

Improvement of hardy wild fruits of the Northwest by breeding and crossing. S. Dak.

Breeding for hardiness in fruits. Minn.

Variety studies of fruits. Iowa, Minn., N.H.

Study of varieties of tree fruits. Mass.

Variety tests of fruit trees. (In cooperation with the Office of Western Irrigation Agriculture Investigations, U.S.D.A.). (Hermiston Branch Station) Oreg., W. Va.

Fruits, general. (Cont.)

- Variety orchard of apples and miscellaneous tree fruits. Ky.
- Variety tests of commercial fruits-Corvallis. Mont.
- Hardy tree fruits for high altitudes. Colo.
- Variety work in pomology. (Six branch experiment stations and commercial orchards). N.C.
- Variety tests with fruits at the substations. S.C.
- Variety testing of tree fruits, small fruits, and vegetables. Idaho.
- Variety and hardiness test of tree fruits. (Northwest Experiment Farm) Minn.
- Fruit trees and fruit bushes. To test adaptability to Matanuska Valley. Alaska.
- A test of varieties of fruit for Imperial Valley. Calif.
- Variety tests of all tree, bush, and vine fruits that will grow in this climate. N.Y. State.
- Variety tests of fruits. To determine the hardiest and best fruits for North Dakota conditions. N.Dak.
- Variety test of orchard fruit. To find varieties best suited to the State, particularly apples, peaches, and plums. Okla.
- Records as to condition, vegetative, and fruiting characteristics, and hardiness for all varieties under trial of apples, plums, cherries, etc. Oreg.
- The introduction and testing of apples, pears, and plums to determine their winter hardiness and adaptability to high altitudes. (High Altitude Substation) Idaho.
- Tree fruits: Studies of varieties and management. Mont.
- Demonstration orchard and variety test of apples, plums, cherries, and pears at Bethany. W.Va.
- Tests of new importations of fruits and vegetables. S.C.
- Fertilizer tests for fruits and vegetables. (South Mississippi Branch Station) Miss.
- Field experiments with commercial fertilizers on fruits. N.Y. State.
- Fertilizers for fruit trees in southern Oregon. Including experiments with pears, peaches, and apples on different soils. (Talent Branch Station) Oreg.

Fruits, general. (Cont.)

Tests of fertilizers for apples, pears, strawberries, potatoes, and clover on different soils of Hood River Valley. (Hood River Branch Station) Oreg.

Nitrate of soda as an orchard fertilizer. Trials in pear, apple, and prune orchards. Oreg.

Cultural tests of fruits. To determine the best way of handling the soil; the best pruning methods and the best methods of winter protection for the various fruits in North Dakota. N.Dak.

Self-sterility and self-fertility of fruits. Mo.

Sterility in fruits. To determine the underlying factors influencing the setting of fruit. Minn.

Climatic injury with special reference to apple and other fruit trees. Wis.

Root hardiness of fruit trees. Wis.

The nutrition of fruits with special reference to their hardiness. Mo.

Smudging experiment. To test a few of the different kinds of smudge pots, and to ascertain whether or not smudging is practicable. N.Mex.

Phenological fruit investigations. To secure data on the blooming and ripening periods of the different orchard fruits. N.Mex.

A study of fruit tree stocks, pruning and planting methods. Calif.

A comparison of budded and grafted trees. N.Y. State.

A test of low-headed v. high-headed trees. N.Y. State.

Study of the water requirement of fruits as affected by pruning and special cultural methods. Ariz.

Nursery plantings of trees and shrubs (fruits and ornamental). Ky.

Tree characters of fruit varieties. Mass.

Time of picking fruit. (Spitzenberg apples and D'Anjou pears under study). (Hood River Branch Station) Oreg.

Germination of seeds of hardy fruits. N.Y. State.

Fruit tree injury from abnormal food supply. Deficiency or surplus of certain plant foods. Mont.

Factors that influence the abscission of flowers of young fruits. N.Y. Cornell.

Fruits, general. (Cont.)

The effects of girdling upon fruit production. N.H.

A study of the effects of different degrees of sunlight on fruit production and of chemical changes in internal conditions of plants so affected. N.H.

Investigations of conditions relating to fertilization of fruit trees. Iowa.

The abortion of pollen in fruit trees, especially of the Winesap. Iowa.

Fruit storage. Wash.

Wild fruit plants of North Carolina. N.C.

Native fruits of North Carolina. N.C.

Fruit surveys. Colo.

A study of the chemical composition of fruits during development under varying conditions of treatment. Del.

Fruits, tropical and subtropical. (See also Citrus, Coffee, Figs.)

Breeding investigations with tropical horticultural plants: To determine methods of breeding best adapted to each species under consideration and to develop new and desirable forms. Hawaii.

Tropical fruit investigations: To secure a greater variety of desirable fruits for growing in Guam. Guam.

To determine the relative merits of various varieties of different species of tropical fruits and also to determine the best cultural treatment for species in question. Hawaii.

The cold storage of certain semi-tropical fruits. Calif.

Experiments with bananas and plantains. To conduct variety, fertilizer, and other cultural experiments to determine the best varieties and methods of fertilizing and culture. Guam.

Development of a strain of the Chamaluco banana resistant to the Panama disease. P.R.

To assist in the development of the cacao industry of the Island. Guam.

To determine extent of variation in yield of individual cacao trees and factors affecting same. P.R.

Fruits, tropical and subtropical. (Cont.)

Coconut experiments. To determine yields and quality of two leading strains or types of coconuts grown in Guam on different soil types; yields and value of different types; effect of fertilizers and careful cultivation on two leading strains or types of coconuts grown in Guam. Guam.

To learn fertilizer requirements of coconuts on Porto Rico beach land. P.R.

Culture and management of date orchards, with special reference to the improvement of the yield and quality of fruit and the rooting of off-shoots. Ariz.

Studies of behavior of dates in the Imperial Valley: Rooting of date off-shoots. Calif.

Study of jujube plants. Ariz.

To acquire, test, and disseminate better varieties of mangos than those grown locally. P.R.

Improvement and study of inheritance in papaya growing. P.R.

Vanilla shading and fertilizer tests. To determine the effect of very heavy as contrasted with very light shading and also the effect of fertilizers on growth and production of vanilla. P.R.

Effect of limitation of production on size of vanilla beans and on subsequent crops. P.R.

Gooseberries.

Gooseberry breeding. The production of hardy varieties suited to the country. Alaska.

Gooseberry variety tests. To find the varieties best suited to Alaska. Alaska.

Gooseberries: Variety studies, including field observations and orchard tests to gain information relative to their behavior, commercial possibilities, and adaptation for the home orchard or garden. Va.

Variety test of bush fruit, including gooseberries, raspberries, blackberries, and currants. Md.

Gooseberry experiments with reference to mildew-resisting powers. Wis.

Grapes.

Inheritance of characters in tree, vine, and bush fruits. N.Y. State.

Inheritance of color in Rotundifolia grapes. To determine the laws governing inheritance of color in Vitis rotundifolia. N.C.

Grapes. (Cont.)

Inheritance of productivity of Rotundifolia grapes. To establish standards of productivity for the most important varieties, to study the factors bearing upon productivity in order to determine methods to pursue in increasing productivity in Vitis rotundifolia and to watch for unusually productive vines. N.C.

Studies in the inheritance of sex in Rotundifolia grapes. To establish the laws of transmission of sex applying to Vitis rotundifolia and to determine methods to be used in hybridization. N.C.

Inheritance of size of fruits in Rotundifolia grapes. To determine the factors governing the size of berries in Vitis rotundifolia and method of transmission of the characters. N.C.

Hybridization of Rotundifolia grapes with other species. To determine the various species with which Vitis rotundifolia will hybridize. To find methods of overcoming antipathy where it occurs, and to establish a scale of hybridization of Vitis rotundifolia with other species. N.C.

Transmissibility and degree of permanence of vegetative variations of the vine. Calif.

Grape breeding. Md.

Breeding Vitis rotundifolia. Ga.

Breeding experiments with all tree, bush, and vine fruits that will grow in this climate. N.Y. State.

Bud selection and performance records with Baldwin apples and grapes. (In cooperation with the Office of Pomology, U.S.D.A.). Mich.

Grape variety tests. Ala., Miss., S.C.

Grape investigations: American and hybrid varieties. Ky.

Grape investigations: Vinifera varieties. Ky.

Variety tests of all tree, bush, and vine fruits that will grow in this climate. N.Y. State.

Tests of new or little known varieties of vines. Calif.

Varieties of grapes best suited for the State. Okla.

Grape variety studies, including field observations and orchard tests to gain information relative to their behavior, commercial possibilities, and adaptation for the home orchard or garden. Va.

Grape varieties and fertilization. N.H.

Grapes. (Cont.)

Fertilizers for grapes. N.Y. State.

Grape experiments. Including fertilizer experiments, variety tests, and pruning. W. Va.

A study of quality characters of *Rotundifolia* grapes. To study the factors controlling the various qualities of *Vitis rotundifolia* such as clinging character of the berries, thickness of skin, transpiration, flavor, aroma, and disease resistance, with a view to finding methods of improvement. N.C.

A study of grapes, *Vitis vinifera*, compared to native or *V. champinii* varieties. Tex.

Test of *vinifera* grapes under Maryland conditions. Md.

Pruning experiments with grapes. N.Y. State.

Effects of summer pruning on the quantity and quality of the crop on the vigor of the vine. Calif.

The effect of pruning on various horticultural crops including grapes and apples. Mich.

Grafting Delaware grape on various stocks. Md.

Resistant stocks for California vines. Calif.

Demonstration of method of growing raisin grapes. Calif.

Relation of degree of maturity of grapes to quantity and quality of raisins. Calif.

Resistant stocks for raisin varieties at Kearney Park. Calif.

Grape trellis and training experiments. Md.

Comparison of important systems of training grapes; study of storage behavior of different varieties; mulching as a soil treatment; culture of *vinifera* grapes; methods of pruning; study of control of diseases and the selection and propagation of disease resistant varieties as relative to the problem of production. Ill.

The influence of the rest period and chemical reagents on the root formation of *Vitis rotundifolia* cuttings. Ga.

Relation of the number of vines per acre to the quantity and quality of the crop. Calif.

Vineyard management. Iowa.

Grapes. (Cont.)

Irrigation of vineyards. Calif.

Influence on the vigor of the vine of the removal of growth in the dormant season. Calif.

A study of sex in grapes, with reference to fruit development and as to sterility and fertility in cultivated varieties. N.Y. State.

A study of factors involved in the production, storing, and shipping of grapes. Ark.

Greenhouse soils. Management and treatment.

The effects of heating soils on germination and plant growth and the development of diseases in heated soils which have become reinfested. Wis.

Study on the effects of using the same soil in greenhouse benches more than one year in relation to flower production. Ill.

Juneberries.

Juneberry tests.--To see if any can grow. Alaska.

Landscape gardening.

A study of the history of landscape art. N.Y. Cornell.

A study of the history of landscape art in England. N.Y. Cornell.

Landscape architecture: Its relation and application to the rural schools of New York State. N.Y. Cornell.

The landscape design and development of private estates. Calif.

A study of the ferns of New York State in their relation to landscape art. N.Y. Cornell.

A study for the purpose of establishing a foliage key to landscape plants. N.Y. Cornell.

New plant materials for landscape use in Iowa. To collect reliable data on plant material regarding their landscape value under Iowa conditions. To test on the station grounds new and little known plant materials. Cooperating with Iowa nurseries. Iowa.

Lettuce.

Strain selection of lettuce. Ohio.

Strain tests of Grand Rapids variety of greenhouse lettuce. N.Y. Cornell.

A study of the effects of certain fertilizer treatments on lettuce and tomatoes under glass. Penn.

Head lettuce investigations. Ky.

Litchis.

To secure data on the best methods of cultivation and marketing of the litchi. Hawaii.

Loganberries.

To collect phenological data on a number of different varieties of strawberries, blackberries, raspberries, currants, and loganberries; to ascertain, if possible, the best varieties of these different fruits for commercial and home plantations. N.Mex.

Mulberries.

Study of species of mulberries. Ariz.

Mushrooms.

Mushroom culture. W. Va.

Nuts, general.

Nut culture. Md.

Nut culture in Minnesota. Including selected varieties of black walnuts, shell bark hickory and the "heart nut" (Juglans siebaldiana var. cordiformis) Minn.

Off-year production.

Effect of pruning and nitrogen fertilizer upon the off-year production of Wealthy apple trees. Wis.

Factors influencing the functioning of apple fruit spurs, with reference to biennial fruiting. Wis.

Olives.

Pruning olives with a view to favoring annual bearing and better fruit. Calif.

The effect upon the quality of olives of methods of sterilization. Calif.

A study of sterility of olives; cultural practices, such as pruning, irrigation, etc. Ariz.

Onions.

A physiological study of onion dormancy. W.Va.

Louisiana creole onion improvement. La.

Orchard management, fertilizers, culture, miscellaneous.

Orchard experiments, variety studies, and cultural treatments. (Appomattox Station) Va.

Orchard nutrition, with special reference to the relations between plant food, environment, nutritive conditions within the plant and production. Mo.

Soil treatment in apple orchards. A study of the effects of certain fertilizers applied to trees under these treatments. Ill.

Fertilizer experiment (on Ben Davis apple orchard) to test the relative value of sulphate of ammonia, nitrate of soda, lime, and phosphate and potash in an apple orchard. Mich.

Fertilizer experiment (in the Quinlan orchard Grand Rapids) to study the effect of nitrogenous fertilizers under different conditions and physiological changes resulting from these applications on vegetative growth and from production of apple trees in their unfruitful conditions. Mich.

Orchard fertilizer investigations. Iowa.

Orchard fertilization. Mass., Wis.

Test of fertilizers in a sod mulch orchard. Mass.

Orchard humus studies. Iowa.

Cooperative orchard experiments. Fertilizer and cultural test. (Northeast Demonstration Farm) Minn.

To determine the effect of certain cultural practices upon an apple orchard as expressed by rate and amount of growth, fruit bud formation and quality and quantity of fruit. (Union Fruit Farm) Nebr.

Orchard management, etc. (Cont.)

Local orchard experiments. Methods of culture. Va.

A study of cover crops. Va.

Orchard culture tests: Corvallis clean culture and various cover crops. Mont.

Investigations as to the relative value of alfalfa sod, grass sod, and cultivation with cover crop for an orchard mulch. Mich.

Comparison of cultivation and sod mulch in a bearing orchard. Mass.

Comparison of clover sod and grass in sod mulch orchard. Mass.

The effect of grass on the nitrogen supply of fruit trees, and the response of the trees to variations in the nitrogen supply. N.Y. Cornell.

To determine the effect of growing crops in orchards. Wash.

The influence of tree growth of different methods of handling alfalfa in orchards. (Hood River Branch Station) Oreg.

The effect of possible secretions from grass roots on fruit trees. N.Y. Cornell.

Cultural tests of fruits. To determine the best way of handling the soil; the best pruning methods and the best methods of winter protection for the various fruits in North Dakota. N.Dak.

Orchard soil management investigations. Studies of the root systems of the apple tree under different methods of soil management. To study the depth, amount, and character of tree roots under different systems of soil management. Ind.

Orchard soil management investigations: A study of the temperatures of the soil under different systems of management as affecting the apple tree. To find the temperatures existing under the various soil treatments and their effects on the apple tree and its environment. Ind.

Orchard soil management investigations: To study the effects and particularly the factors responsible for the effects of different systems of soil management on apple trees. Ind.

Cooperative orchard management. Minn.

Planting distances for deciduous orchard trees. (Davis) Calif.

Effects of different depths of planting upon growth of trees. Oreg.

Studies of fruit bud formation and of orchard cover crops. Kans.

A comparison of top-worked and nursery trees. N.Y. State.

Orchard management, etc. (Cont.)

Growing nursery stock. To produce Alaska-grown trees for test in various parts of the territory. Alaska.

Moisture requirements of deciduous orchards. Calif.

Orchard heating. Iowa.

Use of dynamite in tree planting. Wis.

Renovation of prune orchards. Wash.

Ornamentals, hedge plants.

Testing varieties of trees, shrubs, and perennials. S.Dak.

Variety trials of shade trees. To learn which trees are most hardy in North Dakota and by studying them to learn where they can best be used. N.Dak.

Variety trials of shrubs. To determine the best shrubs for North Dakota and how they can best be used. N.Dak.

Variety tests of ornamental trees. (In cooperation with the Office of Western Irrigation Agriculture Investigations, U.S.D.A.). (Hermiston Branch Station) Oreg.

Variety tests of windbreak trees. (In cooperation with the Office of Western Irrigation Agriculture Investigations, U.S.D.A.). (Hermiston Branch Station) Oreg.

Ornamental perennials tests. To study their behavior. Alaska.

Hardy and half-hardy herbaceous perennials. Ky.

Tests of ornamental trees and shrubs. Mont.

Trees and shrubs for ornamental planting. Ariz.

Testing of introduced shrubs and ornamentals and methods of their propagation. Fla.

Ornamental annuals in variety. To beautify station and test them. Alaska.

Study of ornamental varieties and their uses. Including a peony trial garden, an iris trial plat, and dahlia tests. Minn.

Variety and hardiness tests of ornamental shrubs and vines. (Northwest Experiment Farm) Minn.

Study of tamarisks, particularly Tamarix articulata. Ariz.

Ornamentals, etc. (Cont.)

Growth and hardiness tests of ornamental and windbreak trees. (Northwest Experiment Farm) Minn.

Nursery Plantings of trees and shrubs (fruits and ornamental). Ky.

Ornamental shrubbery tests. To study their behavior. Alaska.

The planting of ornamental trees and shrubs for the homestead. (High Altitude Substation) Idaho.

Study of trees with respect to environment. To determine the adaptability of various ornamental trees to this area for the improvement of the homestead. (Aberdeen Substation) Idaho.

Parsnips.

Seed production. Production studies with carrot and parsnip seed growing. (Aberdeen Substation) Idaho.

Peaches.

Principles relating to transmission of characters in the apple and peach as affected by selection and by crossing. Ill.

The genetic composition of peaches. A genetic analysis of certain varieties to determine degree and manner of transmission of heritable characters. Mass.

Peach breeding. Del.

Peach breeding for hardy sorts. Mo.

Peach breeding experiments. To improve the present list of commercial varieties and to study the inheritance of unit characters in the peach. N.J.

Peach breeding work. To produce new varieties; an earlier variety than the Mayflower; an earlier yellow fleshed variety than Arp Beauty; earlier free-stone varieties of both white and yellow fleshed peaches; varieties hardier in bud. (Willard and Southern Pines) N.C.

Peach variety tests. Ala., Del., Ga., S.C.

Peach variety tests, pruning experiments, and size of tree to plant. Miss.

Peach variety studies, including field observations and orchard tests to gain information relative to their behavior, commercial possibilities and adaptation for the home orchard or garden. Va.

Plant food studies with peaches. N.J.

Peaches. (Cont.)

Fertilizer tests in the peach orchard. Conn. State.

Fertilizer tests with peaches. Ga.

Fertilizer experiments with peaches. Ohio.

Fertilizers for peaches and apples. W.Va.

Use of fertilizers on the peach orchard. N.H.

Functions of nitrogen, potash and phosphoric acid in the production of the peach.
Del.

Response of peach trees to fertilizers under different soil conditions. Va.

Influence of fertilizers on peach production. Penn.

Soil treatments in peach orchards. To determine the relative importance of
clean cultivation, fertilizer treatments, cover crops, etc. on production. Ill.

Peach, plum, and cherry culture. Md.

Rate of growth of fruits: Apples, pears, and peaches. N.J.

Pruning peach trees. N.Y. Cornell.

Peach pruning experiments. A study of the various methods of pruning peach trees
to determine the effect of various modifications of pruning upon the amount,
form, and character of the wood growth, the effect of pruning during the dormant
season, the effect of pruning upon fruit production, and the relation between
various methods of pruning and the essential details of orchard management. N.J.

Summer pruning peach trees. To determine value of summer pruning with "dehorned"
trees and the value of summer pruning with young peach trees. (Substations)
N.C.

"Dehorning" peach trees. To determine the value of "dehorning" in renewing and
invigorating peach trees. (Statesville and Swannanoa) N.C.

Dusting peach and apple trees for the control of insects and diseases. Md.

A study of some factors influencing the hardiness of the peach. Md.

A study of the hardiness of peach varieties in western North Carolina.
(Swannanoa) N.C.

Establishing standard grades of peaches. To establish standard grades of peaches
in view of assisting the growers in marketing their peaches more profitably.
(Substations) N.C.

Peaches. (Cont.)

Studies of two methods of planting peach trees. N.J.

Study with peaches on change of permeability and its relation to availability.
Del.

The longevity and adaptability of the Indian cling peach. A comparison of the longevity of the modern commercial varieties of peach when budded on to the Indian cling stock y. the same variety on stock from the mixed seed obtained on the market. To test the Indian Cling seedlings as to heredity or stability of character, and as direct fruit producers. Tex.

Phenological studies and variety test with peaches. To determine the best varieties for North Carolina and the blooming and ripening dates of different varieties. (Willard, Statesville, and Swannanoa). N.C.

A study of the cause of June drop in peaches in Delaware. Del.

Statistical study of the location, number, and arrangement of fruit buds of peaches under different soil treatments in their relation to growth and metabolism of fruits. Ill.

Pears.

Pear breeding. Md., (Talent Branch Station) Oreg.

Breeding pears for resistance to pear blight. Ga.

Varietal studies of pears. Del.

Testing new varieties of pear. (Talent Branch Station) Oreg.

Pears: Variety tests with special reference to susceptibility to blight. Ala.

Rate of growth of fruits: Apples, pears, and peaches. N.J.

Variety pollination experiment with pears. (1) A variety test of 78 varieties;
(2) to study the relative resistance of these varieties to the pear blight;
(3) to study the degree of self-sterility or self-fertility. N.Mex.

A study of the affinity between the apple scion and the pear stock. To ascertain if the pear root, which is immune to injury by the woolly aphis is a suitable stock on which to bud or graft the apple. N.Mex.

Test orchard of pear stocks. (Talent Branch Station) Oreg.

A study of the graft union from the standpoint, both of the alleged difficulty of top-working the Keiffer pear to other varieties of pear. N.Y. Cornell.

Pruning pears, apples, and small fruits. Nebr.

Pears. (Cont.)

A comparison of little and much pruned pear trees. N.Y. State.

Pear spraying investigations to determine a safe spray application for D'Anjou pears. (Hood River Branch Station) Oreg.

Time of picking fruit (Spitzenberg apples and D'Anjou pears under study). (Hood River Branch Station) Oreg.

A study of the comparative keeping qualities of different varieties of pears in cold storage. Calif.

Pear harvesting and storage investigations. Storage tests with Bosc pears. Oreg.

Pear harvesting and storage investigations. Development of a physical indicator of maturity of the fruit. Oreg.

Peas.

Breeding of field and canning peas. Wis.

Garden and field pea investigations. Breeding and improvement. Idaho.

Breeding and selection of vegetables. Including the Alaska pea, Refugee bean, and Hubbard squash. Minn.

Garden and field pea and bean investigations. Variety tests. (Aberdeen Substation) Idaho.

Garden and field pea investigations. Variety tests with standard varieties. (Sandpoint Substation) Idaho.

Garden and field pea investigations. To determine the varieties best adapted to irrigated and dry lands. (High Altitude Substation) Idaho.

Garden and field pea investigations. Cultural experiments. Idaho.

Garden and field pea investigations. Classification studies. Idaho.

Pecans.

Pecan breeding, to produce improved varieties and varieties especially suited to North Carolina. N.C.

Pecan variety tests. Ala.

Variety testing of pecans. To determine the most desirable varieties for North Carolina. (Substations) N.C.

Pecans. (Cont.)

A study of the commercial value of pecans in North Carolina. (Substations) N.C.

Variety tests with pecans at the Coast Station. S.C.

Pecan investigations. To test the better varieties of pecans to see if some cannot be found which will prove hardy in this part of Oklahoma. Okla.

Sterility and variety tests with pecans. Ga.

Cultural practices with pecans. To determine the most desirable cultural practices in handling pecan orchards. (Willard and Kingsboro). N.C.

Individual tree performance records of pecans. (Willard and Kingsboro) N.C.

Walnut and pecan studies. A study of environmental factors with especial attention to top grafting Juglans major with cultivated varieties. Ariz.

A study of pecans in Arkansas. Ark.

Pecan culture in California. (Davis) Calif.

Pecan, English walnut, and almond experiment: (1) To ascertain whether New Mexico climatic and soil conditions are suitable for the growing of these nut trees; (2) to study the different methods of preventing winter injury to the trees; and (3) an investigation on originating, if possible, a late blooming almond. N.Mex.

Cracking tests with pecans. To determine the value of different varieties as regards cracking quality. N.C.

A study of the proteins of the pecan. To find the per cents of proteins extracted by the solvents commonly used. Okla.

Persimmons.

Japanese persimmons. Miss.

Development of fruit in persimmon and pawpaw. To study the histology, morphology, and physiology of these fruits. Md.

Pistachios.

Study of pistach trees (Pistacia vera). Ariz.

Plums.

Improvement of plums by selection. Wis.

Plum variety tests. To see if any will mature fruit. Alaska.

Varietal studies of plums. Del., S.C.

Variety test of European, Native, and Japanese Plums and Sweet and Sour Cherries.
To test a number of the newer varieties of these different fruits. N.Mex.

Plum, peach, and cherry culture. Md.

A test of little and much-pruned plum trees. N.Y. State.

A test of stocks for plums. N.Y. State.

Plum pollination experiment to determine if kind of stock has any effect upon the degree of set resulting from cross pollination. Mich.

The pollination of Domestica and Triflora plums under California conditions. Calif.

Pollination studies. (See also specific fruits.)

Pollination studies. Calif.

Orchard pollination. Tests of sterility of varieties of apples and influence of insect pollination and of the development of pollen tubes and process of fertilization in self-pollinated and cross-pollinated blossoms. Wash.

Prunes.

Prune breeding investigations. Oreg.

Prune studies. Calif.

Renovation of prune orchards. Wash.

Rejuvenation of old fruit trees with especial reference to prunes. Calif.

A chemical study of the process of ripening in the prune, with special relation to improvement of methods of drying. Wash.

Pruning. (See also specific fruits.)

Pruning experiments. Oreg.

Testing methods of pruning. Mass.

Pruning. (Cont.)

Pruning experiment: To study the effect of different times and styles of pruning.
N.Mex.

Pruning tests with various fruits. Propagation of orchards in place. (South
Mississippi Branch Station) Miss.

The effect of different methods of pruning upon deciduous fruit. Ariz.

Experiments on the comparative effect of different methods of pruning on differ-
ent fruit varieties and soils. Calif.

To study the effects of pruning upon the tree and some of the causes contributing
thereto. Ind.

A physiological study of the effect of pruning upon the growth and productiveness
of citrus trees and other horticultural plants grown under irrigation in arid
regions in southern California. Calif.

Some physiological responses of the apple tree to pruning. To gain an accurate
index of tree activity through physiological studies with a view of interpreting
the results of pruning practices. Ind.

Physiological effect of pruning fruit trees, including peaches, pears, plums,
cherries, and quinces. W.Va.

The effect of pruning and of fruiting, especially production, on the amount of
dry matter produced by a given leaf area, with apples, cherries, gooseberries,
and grapes. N.Y. Cornell.

The effect of the pruning necessary to secure various forms on the leaf surface,
growth, and fruiting habit of apples, pears, plums, quinces, and cherries.
N.Y. Cornell.

Pruning as a factor in bud formation and differentiation. To determine the
fundamental causes of fruit-bud formation and differentiation as influenced
by the time and manner of pruning. Oreg.

Summer y. winter pruning experiments. Idaho.

A test of summer as compared with winter pruning. N.Y. State.

Comparison of the effects of long and short pruning on varieties which are
commonly pruned both ways. Calif.

A study of fruit tree stocks, pruning, and planting methods. Calif.

Quinces.

Quince variety tests. Ala., Md.

Raspberries.

Mendel's law in relation to raspberry and blackberry hybrids. Wash.

Mendelism in the hybrids of raspberries and blackberries, particularly with reference to leaf structure and habits of growth. Wash.

Raspberry breeding. To produce new and better varieties. Alaska.

Plant breeding, using blackberries, dewberries, and raspberries (genus Rubus). Tex.

Propagation and selection of small wild fruits. To find desirable plants of red raspberries and red currants. Alaska.

Raspberry variety tests. To test them out to find the best sorts. Alaska.

Variety tests and breeding work with small fruits. Especially strawberries and raspberries. (Aroostook Farm) Me.

Variety test of bush fruit.--Including currants, gooseberries, raspberries, and blackberries. Md.

Raspberries: Variety studies, including field observations and orchard tests, to gain information relative to their behavior, commercial possibilities, and adaptation for the home orchard or garden. Va.

To collect phenological data on a number of different varieties of strawberries, blackberries, raspberries, currants, and loganberries; to ascertain, if possible, the best varieties of these different fruits for commercial and home plantations. N.Mex.

Fertilization and culture experiments with raspberry and blackberry. N.H.

Rhubarb.

The development of an improved variety of rhubarbs. Penn.

Small fruits, general.

Experiments with small fruit. Mont.

Vegetable and small fruit studies for the Delta. (Delta Branch Station) Miss.

Propagation and selection of small wild fruits. To find desirable plants of red raspberries and red currants. Alaska.

Small fruits, general.

Varietal studies of the brambles. Del.

Variety testing of small fruits from fruit breeding station. (Northeast Demonstration Farm) Minn.

Variety and hardiness tests of small fruits. (Northwest Experiment Farm) Minn.

Breeding experiments with all tree, bush, and vine fruits that will grow in this climate. N.Y. State.

Inheritance of characters in tree, vine, and bush fruits. N.Y. State.

Variety testing of tree fruits, small fruits, and vegetables. Idaho.

Variety tests and breeding work with small fruits. Especially strawberries and raspberries. (Arcostook Farm) Me.

Variety test of bush fruit, including currants, gooseberries, raspberries, and blackberries. Md.

Variety tests of all tree, bush, and vine fruits that will grow in this climate. N.Y. State.

Bush fruits. To test some of the most popular varieties of bush fruits and strawberries. Okla.

Bush fruit experiments. Fertilizer and variety tests. W.Va.

Horticultural investigations. To determine the possibilities of growing small fruits for home use. (High Altitude Substation) Idaho.

Small fruit tests. To learn what small fruits can be grown and how best to grow them. Alaska.

Pruning small fruits, pears, and apples. Nebr.

A study of the relation of winter injury to brambles to differential fertilization with potash salts. Mass.

A study of production and handling of cane fruits. Ark.

Small fruit survey. W.Va.

Spinach.

A study of spinach as a market garden crop for southern Arizona. Ariz.

Spinach following tomatoes. Oreg.

Squash.

Pure-line breeding with squash and strawberries. Study of influence of continued self-pollination on quality, quantity, seed production, vigor, and vitality of progeny; maintenance of pure lines without inter-crossing. Vt.

Breeding and selection of vegetables. Including the Alaska pea, Refugee bean, and Hubbard squash. Minn.

Spraying, dusting, and fumigating, general. (See also Chemistry- chemical studies, various; Horticulture- specific fruits; Diseases of plants- fungicides and specific plants; and Entomology- insecticides.)

Spraying fruits for insect and fungus diseases. To determine the benefit to be derived from the addition of a substance to increase the spreading qualities of lime sulphur. Mo.

Spraying, with special reference to meeting the local requirements to control insect and fungus diseases. Va.

To determine the comparative value of various fungicides and various spray programs for the control of the commoner and more important fruit diseases of Oregon. Oreg.

Testing new spray materials as they become commercially important. Mass.

Scab spraying investigations. Testing of proprietary sprays. (Hood River Branch Station) Oreg.

Comparative tests in the use of present day spraying equipment. (Hood River Branch Station) Oreg.

Investigation of stickers, spreaders, and diluents for spraying and dusting, particularly the latter. To find satisfactory dust materials that will take the place of liquid mixtures, to find a spreader for commercial lime-sulphur and a sticker for self-boiled. N.J.

Chemical investigation of spray materials. Oreg.

The toxicity of arsenical sprays. Wash.

A study of the physical properties of insecticides and fungicides. Oreg.

Physiological effects of arsenical compounds on vegetation. Mont.

The stimulating effect of Bordeaux mixture on plants, especially the potato plant. Vt.

Study of plant stimulation by formaldehyd. Mass.

Spraying, dusting, and fumigating, general. (Cont.)

How to prepare from leaf tobacco or waste a dependable infusion for spraying. K.

Disinfectants for blight control work. (Talent Branch Station) Oreg.

Scab spraying investigations. Studies of spraying practices as a basis for spraying program. (Hood River Branch Station) Oreg.

Scab spraying investigations. Determining strength of dilutions necessary to effect control. (Hood River Branch Station) Oreg.

Spraying investigations. Relative value of different materials for moss eradication on trees. Oreg.

Experimental spraying for control of mildew under glass. Mass.

The relative efficiency of spraying and dusting for the insect and fungus pests of apples and peaches. (In cooperation with the U.S. Department of Agriculture) Conn. State.

Liquid v. dust sprays. Ohio.

Dusting and spraying experiments. Including work with potatoes, pears, apples, cherries, peaches, plums, grapes, and raspberries. Mich.

Dusting experiments to determine the practicability of dust applications in the control of diseases and insects of the orchard. Va.

Dusting forest areas by aeroplane. Ohio.

Stock and scion investigations. (See also specific fruits.)

To study the inter-relation of stock and scion in both its commercial and scientific aspects. Ind.

A study of the relationship of the parentage of scions to subsequent fruitage; of the question whether scions from high bearing, low bearing, and constant bearing trees will perpetuate these characteristics or whether they will be modified by the characteristics of the tree into which they are grafted. Vt.

A study of the affinity between the apple scion and pear stock. To ascertain if the pear root, which is immune to injury by the woolly aphis, is a suitable stock on which to bud or graft the apple. N.Mex.

Root stock investigation. Calif.

Strawberries.

Strawberry breeding. Ky.

Strawberry breeding investigations. Pollination experiments with Ettersburg 121. Oreg.

Pure line breeding with squash and strawberries. Study of influence of continued self-pollination on quality, quantity, seed production, vigor, and vitality of progeny; maintenance of pure lines without inter-crossing. Vt.

Fruit breeding, especially apples and strawberries. Nebr.

Strawberry breeding, to secure varieties that shall be suited to the Alaska climate, particularly in point of hardiness. Alaska.

Strawberry breeding investigations. Varietal trials with new varieties. Oreg.

Strawberry runner selection. A study in improvement in yield by stolon selection on the basis of parental yields. Vt.

Strawberry variety tests. Ala., Wis.

Strawberry variety tests. To test and select the best varieties. Alaska.

Variety tests and breeding work with small fruits. Especially strawberries and raspberries. (Aroostook Farm) Me.

Testing new variety strawberries. Md.

Variety tests of strawberries. Miss.

Variety testing of strawberries. To determine if there are any varieties of strawberries more desirable as commercial varieties than Klondike and Missionary, the two leading sorts. (Willard) North Carolina.

Bush fruits: To test some of the most popular varieties of bush fruits and strawberries. Okla.

Variety tests with strawberries and potatoes. (Hood River Branch Station) Oreg.

Strawberry experiments, including variety test, bud variation, and strawberry culture, fertilizer experiments. W.Va.

Comparison of Klondike and Missionary varieties of strawberries for commercial purposes. (Willard) N.C.

Strawberry variety trials and cultural experiments. Ky.

Cultural practices with strawberries. To determine the most satisfactory planting date and the value of removing blossoms and cutting runners in growing strawberries under the hill system. (Willard) N.C.

Strawberries. (Cont.)

Methods of growing strawberries. Md.

A study of production and handling of strawberries. Ark.

Sterility of strawberries.--Cause and remedies. Vt.

Investigations with everbearing strawberries. Mo.

To collect phenological data on a number of different varieties of strawberries, blackberries, raspberries, currants, and loganberries; to ascertain, if possible, the best varieties of these different fruits for commercial and home plantations. N. Mex.

Sweet corn.

Metabolism studies with sweet corn. Md.

Breeding sweet corn suitable for the South. Ga.

Breeding and selection for better sweet corn for canning. Me.

Sugar corn seed production and breeding. Md.

Production of a strain of sweet corn for Porto Rico. P.R.

Utilization of hybrid vigor in sweet corn. To cross distinct strains in order to get hybrid grain for seed purposes. (Highmoor Farm) Me.

Improvement of yield, quality, and uniformity of sweet corn. Wis.

An experiment on the possible improvement of seed sweet corn in the matter of freedom from various diseases by selection, germination tests and examination of the germinating seed for presence of disease. Conn. State.

To study seed improvement of seed corn and to compare home-grown seed with imported from the East and North. To discover the influence of the source of seed upon the percentage of sugar in sweet corn, selfing to establish practical or complete homozygous strains. Ind.

Improvement of dent, flint, and sweet corn in yield and feeding value, by breeding work in 5 different localities. Conn. State.

Variety tests with sweet corn and selection to secure new and improved strains. (Highmoor Farm) Me.

Variety test of sweet and ensilage corn. Me.

Sweet corn. (Cont.)

Sweet corn seed studies. Including methods of curing and handling; a comparison of results from the use of diseased and disease-free seed of strong v. weak seed and of the canning quality of corn grown from eastern seed as compared with native seed. Iowa.

To determine the effect of suckering sweet corn. N.H.

A study of the effects of removal of suckers of sweet corn, on earliness, size of ears, total yield, and other conditions. N.Y. Cornell.

Fertilizer experiments with sweet corn for canning. Iowa.

Sweet corn investigations. Iowa.

Tomatoes.

A study of inheritance in the tomato. Penn.

Tomato breeding. N.J.

Breeding disease resistant tomatoes. Del.

The value of selection on yield and earliness of tomatoes. N.H.

The development of wilt resistant tomatoes. Ga.

Development of a wilt resistant greenhouse tomato. Ind.

To develop a more satisfactory strain of tomato for a canning crop tomato.
Studies of plant growing and fertilizer requirements, also seed production.
Ind.

Tomato variety tests. Colo., Fla., S.C.

Variety and strain test of tomatoes. (Market Garden Field Station) Mass.

Greenhouse tomato variety study. N.Y. Cornell.

Tomatoes: The relative merits of varieties for different purposes. Penn.

Tomato investigations: Contrast in value of varieties- Grand Rapids Forcing and Bonny Best. Oreg.

A study of the commercial strains of Bonny Best and Chalks Jewel tomatoes and Copenhagen market cabbage, to locate superior strains of all desirable qualities. N.Y. Cornell.

Tomatoes: Variety culture and fertilizer tests. (Holly Springs Branch Station) Miss.

Tomatoes. (Cont.)

Plant food studies with tomatoes. A study of the effect of different fertilizer elements and mixtures of these elements. A comparison of home and commercial fertilizers and rate and methods of application of fertilizers. N.J.

Fertilizer experiments with tomatoes and sweet corn. Iowa.

Fertilizer treatments of tomatoes with especial reference to the production of dwarf plants, with short internodes, during the warm part of the fall months. Md.

A study of the effects of certain fertilizer treatments on tomatoes and lettuce under glass. Penn.

Cooperative tomato investigations. Studies on fertilizer requirements and of wilt-resistant strains. Mo.

A study of the fertilizer requirement of tomatoes and cabbage. Penn.

A study of the effect of phosphorus upon the time of maturity, quality, yield, and chemical composition of the tomato fruit. N.H.

Production of seed of wilt resistant tomatoes. La.

Propagation of wilt resistant strains of tomatoes. (In cooperation with the U.S. Department of Agriculture). Ark.

Disease resistance studies with beans, tomatoes, and cabbage. Ohio.

Relation of date of propagation and benching to productiveness of tomato plants. Penn.

Relative value of pollination methods of greenhouse tomato varieties. Oreg.

Pollination of greenhouse tomatoes. N.Y. Cornell.

To try the different methods of producing early tomatoes; to test a number of representative varieties of the early and late ripening kinds; to try different cultural methods. N.Mex.

A study of factors involved in the production and marketing of tomatoes. Ark.

Seed selection tomatoes.--Effect of using home grown seed as contrasted with purchased seed. Mont.

Tomato spraying. (Appomattox Station) Va.

The practicability of growing vegetable seeds on the University Farm. Calif.

A study of the effects of pruning and staking tomatoes, on yield, earliness, quality, and cost of growing, also a study of the causes of the effects produced. N.Y. Cornell.

Tomatoes. (Cont.)

Factors affecting setting of fruit on the tomato. Okla.

Nutrition of the tomato. Studies intended to throw light upon conditions within the plant, correlated with certain external treatments and the response of the plants to those treatments. At present confined to nitrogen nutrition. N.Y. Cornell.

Cost of tomato production. N.J.

An investigation of the accuracy of the results secured in the microscopical examination of manufactured tomato products. N.Y. State.

Tung oil nut trees.

Propagation and planting tests with the tung oil nut tree. Fla.

Vegetables and truck crops, general.

Breeding vegetables for North Dakota. To develop new varieties and improve old ones, especially for North Dakota conditions. N.Dak.

Breeding work with fruits and vegetables. S.C.

Vegetable and fruit breeding, selection, and testing. Ark.

The production of more suitable kinds of some of the more important vegetables, by crossing and selection. Also acclimatization and adaptability by growing the plants to the seeding stage under local conditions. Md.

Variety tests of vegetables. To find the varieties best suited to that State. Okla.

Variety tests with vegetables at the substations. S.C.

Variety test with string beans, melons, and onions, melon breeding, onion seed production, source of potato tubers for planting. Utah.

Variety tests of vegetables. To see what can be grown. Alaska.

Variety testing of tree fruits, small fruits, and vegetables. Idaho.

Variety test of vegetables, including sweet potatoes, Irish potatoes, cabbages and tomatoes, for commercial growing in Mississippi. Miss.

Variety tests of vegetables. To determine hardiest and best varieties for North Dakota conditions. N.Dak.

Vegetables and truck crops, general. (Cont.)

Variety testing of novelties, or apparently worthy kinds of the most important vegetables. Md.

Tests of new importations of fruits and vegetables. S.C.

Variety tests and source-of-seed tests. Kans.

To obtain varieties of vegetables adapted to Porto Rican conditions, and of good quality and yield. P.R.

Fertilizer tests for fruits and vegetables. (South Mississippi Branch Station) Miss.

Soil fertility studies from the standpoint of the vegetable grower. Md.

A study of the fertilizer requirements of cabbage, tomatoes, and potatoes on DeKalb soils. Penn.

Variety cultural tests of vegetables. Mont.

Cultural tests with vegetables. To determine the best planting dates, distance and methods for growing common vegetables in North Dakota. N.Dak.

The principles of intertillage. A study of the effects of cultivation on soil moisture, root development, and yields of vegetables. N.Y. Cornell.

Straw mulch v. cultivation for non-irrigated gardens. Mont.

Maintenance of fertility for production of vegetable and market garden crops. N.Y. Cornell.

Beets, followed by clover, by cownorn turnip, and by soy beans (all three plowed under in fall) and by clover, rye, and by timothy (plowed under in spring), lettuce followed by the same green manure scheme, fertilizer only. R.I.

Vegetable growers rotations: Cabbage-beets, tomatoes-spinach, lettuce-celery, also with beets replaced by rye and vetch, rye and wheat for green manures; and with spinach and lettuce similarly replaced by rape (autumn) and oats (spring), sweet clover and mammoth clover; with 32 tons of stable manure alone, 16 tons of manure and fertilizer having more and less of nitrogen, phosphorus and potassium, and with no manure with peat to supply organic matter equal to that in 16 tons manure. R.I.

Vegetable growers rotations: Beets-cauliflowers, spinach-carrots, eggplant, also with cauliflower replaced by rye grass and clover for green manure and eggplant followed by rye for green manure; with 31, 16, 8, and 0 tons manure, and fertilizer in each case; more and less nitrogen, phosphorus, and potassium; peat; subsoiling, gravelling; horse manure with straw v. sawdust or shavings bedding. R.I.

Vegetables and truck crops, general. (Cont.)

Greenhouse rotation: Lettuce, lettuce, cucumbers, including sterilization and use of peat. R.I.

Greenhouse rotation: Radishes and spinach (200 more times), tomatoes; manure compost, sand and fertilizer with more and less nitrogen, phosphorus and potassium to determine nutrient requirements. R.I.

Variable cash crops followed by sweet clover, alfalfa, mammoth clover, and by vetch to determine their hardiness and value as green manures and nitrogen fixers. R.I.

Sudan grass, buckwheat, pearl millet, cowpeas, barley, kale, corn, sunflower millet, planted about July 15, to ascertain which will produce the largest average amount of dry matter for possible humus material after that date. R.I.

Vegetable growers rotations. Crops variable: Ten cords manure v. fertilizer alone. R.I.

A study by the survey method of the factors influencing yields, cost of production, and returns of canning crops. N.Y. Cornell.

Canning crops. Utah.

Comparison of southern and northern-grown vegetable seed. (South Mississippi Branch Station) Miss.

Vegetable seed growing. To produce Alaska-grown seed for use of the station and to ascertain if commercial seed growing will be possible. Alaska.

A study of seed production of garden crops. Ga.

The suitability of Garrett County for the production of cool-climate vegetables during the summer. Md.

Transplanting investigations with vegetables. Laboratory investigations on the hardening processes. Mo.

Irrigation of truck crops. Iowa.

Development of all-year garden in Coastal Plain. (Willard) N.C.

The practicability of growing vegetables on the University Farm. Calif.

Vegetable and small fruit studies for the Delta. (Delta Branch Station) Miss.

Miscellaneous vegetable trials. Ky.

Truck crops survey. Iowa.

Vegetable growing. Virgin Islands.

Vegetables and truck crops, general. (Cont.)

The home vegetable garden. A model backyard garden and a model farm garden. Mo.
Garden vegetable demonstrations. Guam.

Walnuts.

Walnut breeding investigations. Calif.

Walnut pollination and breeding investigations. Oreg.

The improving of trees, especially the Black Walnut. To develop more desirable and hardy strains of trees which are only half hardy. N.Dak.

Propagation of apple, walnut, and sweet cherry by pretreatment of scion wood in place. Penn.

Pecan, English walnut, and almond experiment: To ascertain whether New Mexico climatic and soil conditions are suitable for the growing of these nut trees; to study the different methods of preventing winter injury to the trees; and an investigation on originating, if possible, a late blooming almond. N.Mex.

Walnut grafting investigations. Mo.

Field trials of fertilizers and green manure crops with walnuts. Calif.

Walnut and pecan studies. A study of environmental factors with especial attention to top grafting Juglans major with cultivated varieties. Ariz.

Walnut irrigation, harvesting, and curing trial in its relation to moldy walnut kernels. Calif.

Sunburning and winterkilling of walnut trees. Calif.

Watermelons.

A study of the factors involved in the production and shipping of watermelons. Ark.

Winter injury. (See also specific fruits.)

Frost injury observations. Oreg.

Frost injury. Temperature at which fruit buds are injured. Orchard heating. Utah.

To determine relative importance of factors in winter injury to roots of fruit trees and cane fruits. Nebr.

Winter injury. (Cont.)

Winter injury. To determine the best procedure in handling trees injured by the severe winter of 1919-20. (Hood River Branch Station) Oreg.

Freeze injury to orchards, cankers, and miscellaneous troubles. Oreg.

The recovery of fruit trees from serious winter injury. N.Y. Cornell.

A study of the nature, causes, and prevention of winter injury to fruits, with special reference to the apple, including the root system. N.H.

A study of air drainage and spring temperature variations as affecting frost injury to fruit. N.Mex.

Winter desiccation of fruit trees. A study of the physiological and pathological conditions resulting in the early spring death of fruit trees from so-called winter injury. Wash.

Miscellaneous.

Breeding of horticultural plants. Utah.

The relative response of gooseberries, currants, red and black raspberries, blackberries, young apple trees and corn, when growing in the same soil, to applications of fertilizers. N.Y. Cornell.

Miscellaneous fruit, vegetable, ornamental, and nursery stock studies. Ariz.

Identification and study of factors determining hardiness and establishing methods to increase it. Mo.

The home orchard. Mo.

Maintaining an orchard for the testing of fruit trees. (In cooperation with the Office of Foreign Seed and Plant Introduction, U.S.D.A.). Tex.

Utilization of horticultural products. Utah.

Horticultural survey of the State. Utah.

To study the various muck land problems in northern Indiana from a horticultural standpoint, fertilizer treatment for vegetables and melons and variety tests. Ind.

Greenhouse investigations. To determine what greenhouse crops are best grown in North Dakota, the best varieties, and how best to grow the crops under North Dakota conditions. N.Dak.

SEEDS AND SEED TESTING.

Germination studies.

Physiology of seed germination. Minn.

Analyses and germination tests of collected (official) samples. Md.

Analyses and germination tests of collected (unofficial) samples. Md.

Studies of the germination of beet seed. N.J.

Studies of the germination of celery seed. N.J.

Best laboratory medium for the germination of corn. N.J.

Production and distribution.

Cooperative seed production and distribution. Minn.

Increase and distribution of seed. Wash.

Increasing and dissemination of pure bred seeds. To increase and disseminate pure seeds of cereal and forage crops. N.Dak.

To increase and distribute pure seed of the various crops which have been improved. Including oats, Idaho-Rural potatoes, and Trebi barley are being distributed. (Aberdeen Substation) Idaho.

Experiments in seed production. Idaho.

Miscellaneous.

Seed testing and seed studies. N.Y. State.

Seed investigations and seed control. Iowa.

Carrying out the investigational features of the pure seed law and to provide wholly purchasers and users of seed may gain information relative to the quality, purity, and variety. N.Dak.

The enzymotic and other chemical changes concurrent with loss of viability in seeds. Ky.

Studies on the longevity of grass and clover seeds. N.J.

A study of plant growth and crop production in relation to size and weight of seed. N.J.

Influence of form and amount of sulphur on growth and development of seed and of sulphur-loving plants. Wis.

Miscellaneous. (Cont.)

Preliminary tests of different fertilizing substances and mixtures on seeds. Ky.

Disinfecting seeds. N.J.

Seed storage investigations. N.J.

Investigation in the drying of agricultural seeds for the reduction of moisture content as a preservative measure in storage. N.J.

Alfalfa seed certification. Ariz.

WEEDS.

Eradication and control.

Weeds and their control. Ark.

Weed control. Iowa.

Investigations upon weeds: To provide measures for control. N.Dak.

Study of methods of weed eradication. Wis.

Spraying for weeds. Wash.

Eradication of weeds from seed beds and transplant beds, and in forest plantations, by chemical sprays. N.Y. Cornell.

Eradication of Canada thistles. Penn.

To determine a practical method of eradicating Johnson Grass. N.Mex.

Nut grass eradication. Ala.

Eradication of quack grass. Penn.

A survey of the occurrence of the perennial sow thistle with methods of control and eradicating it. Minn.

Miscellaneous.

Weed plats or the influence of fertilizers on the natural vegetation. N.J.

The weed beds of upper Cayuga Lake. N.Y. Cornell.

The preparation and distribution of specimen cases of noxious weed seed. Minn.

Study of weed seeds, chemically and microchemically. Iowa.

FORESTRY.

Basket willows.

Basket willow test. To determine the best variety of commercial willow for Oklahoma. Okla.

Basket willow culture: To study the financial returns, yield of roots and cultural methods involved in the raising of basket willows. Mich.

Basket willow culture and propagation: To introduce them and study their behavior. Alaska.

Forest management.

Management of the native woodlot. Iowa.

Woodlot management. Penn.

Determination of the best systems of management of the several natural and artificial types of native woodlands with respect: (a) To regeneration; (b) to increase wood production; (c) to improve the quality of stand. Ohio.

The effect of cleanings, thinnings, and improvement cuttings on the volume, growth, and sugar yield of stands of hard maple. N.Y. Cornell.

Forest mensuration.

Studies in forestry yield and volume. Minn.

Preparation of yield tables for second-growth hardwoods in the Adirondacks. N.Y. Cornell.

Preparation of volume tables for principal California species. Calif.

Volume, growth, and yield studies, in second-growth hardwoods, and with natural and planted stands of white pine, Scotch pine, red pine, and Norway spruce. N.Y. Cornell.

Forest nursery studies.

State forest nursery: Testing of trees and shrubs suitable for windbreaks, timber, or landscape purposes, and the increasing and distribution (by sale) of promising species. (Fort Hays Branch Station) Kans.

Propagation of forest trees: Determination of the best methods for the production of forest planting stock. Ohio.

Forest nursery studies. (Cont.)

Fertilizing in forest nursery practice. Preliminary experiments in fertilizing Scotch pine in seed bed plats. N.Y. Cornell.

Forest products.

Investigations in forest products. Iowa.

Forest by-products. Idaho.

Shingle experiment. Penn.

Lasting qualities of western red cedar shingles nailed with different kinds and number of nails. Penn.

The role of microorganisms in destroying stored wood pulp. Minn.

Reforestation.

Reforestation. (North Central Branch Station) Minn.

Reforestation: Studies of the rate of growth of tree species used in forest planting. Ohio.

Reforestation: Methods of planting and management of forest plantations, windbreaks, and shelter belts. Ohio.

Reforestation: Determination of species, and mixtures of species adapted for commercial plantations, windbreaks, and shelter belts in different sections of Ohio. Ohio.

A study of the underlying principles governing the natural reproduction of forest growth. Vt.

The reforesting with useful trees, a tract of 200 acres denuded by charcoal burners. P.R.

Studies in forest regeneration. Sowing and planting, especially with exotics. Minn.

Studies in forest regeneration. Seed studies. Fertilizer experiments on seed beds. Minn.

Studies in forest regeneration. Mensuration. Yield studies on jack pine. Minn.

Studies in forest regeneration. Nursery practice. Work with the elm, ash, maple, and fir. Minn.

Tree planting, experimental.

Experimental tree planting. Idaho.

Experimental forest plantings. Penn.

Forest plantations for commercial purposes. Iowa.

Maintaining an arboretum for testing of forest trees for ornament, shade, wind-break and building purposes. Tex.

Forestry experiments to determine methods of seeding and rate of growth of various species. S.C.

Windbreaks.

Windbreaks. (North Central Branch Station) Minn.

Demonstration windbreak plantations. Minn.

Windbreak planting investigations. Including degree of success, soil, planting conditions, weather, and cultivation. Minn.

Wood, studies of.

Relative durability of Idaho woods. Idaho.

Relative durability of various pines and of redwood cut from old and second growth. Calif.

Studies of Minnesota woods. A study of the physical properties of Populus tremuloides. Minn.

Determination of moisture content of different woods under various conditions and their adaptability for special purposes. Penn.

Studies in the decay of wood. Colo.

Wood collection. Minn.

White fir and cottonwood as butter box materials compared with spruce. Calif.

Miscellaneous.

Tree studies. Iowa.

Field observations in forestry. Penn.

Studies of farm woodlands. Idaho.

Miscellaneous. (Cont.)

Phenological forestry observation. Penn.

Forest tree investigations. Varietal tests. Kans.

The introduction and propagation of forest and shade trees for various regions of Texas. (Substation) Tex.

A study of tolerance of forest trees. Vt.

Immature forest stands. To determine the effect upon white pine reproduction of over-topping by hardwoods. Growth studies on White, Scotch, and Red pine, European larch, Norway spruce, Douglas fir, and White ash. N.H.

Seed production of white pine in Ithaca regions. N.Y. Cornell.

Sample plats of second growth stands of mixed hardwoods at Mapleton, N.Y. Record of the growth and yield of white pine, Scotch pine, red pine, and Norway spruce in planted stands, and of evergreen and hardwoods in natural stands, are being kept on sample plats in various sections of the State by members of the departmental staff in cooperation. N.Y. Cornell.

Commercial tree studies with respect to rate of growth, management, and utilization of the different commercial timber trees of the State. Ohio.

The location, supply, and development of the chief pulpwood species of the United States. N.Y. Cornell.

A survey of the forest areas of the State for the purpose of determining the resources in standing timber, the condition of the woodlands with respect to future yields, lands which should be permanently devoted to forestry, and the area and condition of idle areas within the State. Ohio.

A study of the timber resources of the State and conditions of forest maintenance. Iowa.

Preparation of a manual of the trees, wild and cultivated, grown in Maryland. Md.

Forest trees of Minnesota. Minn.

Sylviculture studies at Itasca Park. Minn.

Working plan for Itasca Park. Minn.

Quantitative and qualitative forest increment on cut-over lands. Calif.

Study of second growth on cut-over hardwood lands. Mich.

Quantitative and qualitative survey of cut-over lands. Minn.

Forestry, miscellaneous. (Cont.)

Factors affecting the cost of log making and skidding. Calif.

A survey of the wastes resulting from the logging and milling of California redwood and associated species. Calif.

Growing trees for fence posts. To determine what varieties of trees are best adapted to post, pole, and shade purposes. Okla.

DISEASES OF PLANTS

Alfalfa diseases.

Alfalfa diseases: Investigations of the life history of the causative organisms and the effect of environmental factors, such as temperature and water content of the soil. La.

The fungus diseases of clovers, sweet clover, and alfalfa. Iowa.

White spot of alfalfa. Ariz.

Apple diseases.

Studies of the apple blotch. (Arendtsville) Penn.

Study of apple blotch to determine causes, habits, and means of control. Ill.

Apple blotch investigations. To determine the effect of dormant sprays upon the apple blotch fungus within the cankers and upon the subsequent development of the disease on fruit and young wood. Ind.

Blister canker of apple trees and its control. N.Y. State.

Investigations for the control of the Illinois blister canker of the apple. Iowa.

Treatment of apple canker disease. Testing methods of sterilizing cuts to prevent infection of blister canker and for sterilizing the cut surface of a cleaned canker. Mo.

Bacteria in crown gall of the apple. Iowa.

Effect of crown gall and nematode on growing apple trees. Ga.

Fire blight of apple. Ariz.

Apple flyspecks. A study of the morphology and taxonomy of the causal organisms. N.Y. Cornell.

Apple measles. N.Mex.

Apple diseases. (Cont.)

Studies in the black rot of apples. (Arendtsville) Penn.

Black root rot of the apple. A study of symptoms, etiology, transmission, and control of this disease. Va.

A study of root rot of apples. Del.

Apple ring rot. Ark.

Apple scab and its control. Wis.

Apple rust. Penn.

Detailed study of life history of fungus or fungi causing apple rust in West Virginia. W.Va.

To determine manner of overwintering, time and condition of infection, and methods of control of apple leaf spot and scab. W.Va.

Study of diseases affecting the wood of apple trees, particularly Grimes collar rot and blister canker, to solve causes and remedies of diseases. Ill.

Control of apple diseases. Ark.

Apple disease control investigations. Mass.

Spraying investigations. Relative value and safety of copper containing sprays and other materials in early applications for apple tree anthracnose control. Oreg.

Relative value and safety of dilute lime sulphur sprays, ordinary lime-sulphur, dry lime-sulphur, sulphur dust and certain copper combinations for apple scab control. Oreg.

Orchard spraying experiments at Highmoor. To obtain light on the fungicidal action of the arsenate of lead in controlling apple scab. (Highmoor Farm) Me.

Dusting v. spraying. To determine the efficiency of dust methods of control of insects and fungus diseases of the apple. Ind.

Comparison of dusting and spraying for the control of insects and diseases on the apple. W.Va.

Apricot diseases.

A study of apricot gummosis and its control. Calif.

Avocado diseases.

Avocado diseases- notably fruit spotting and avocado scab. Fla.

Barley diseases. (See also Cereal diseases, general.)

Barley smut. Wash.

Breeding for resistance in barley to covered smut of barley (Ustilago hordei). Calif.

Eradication of loose smut in barley and wheat. Mich.

Treatment for smut on barley. (North Central Branch Station) Minn.

Diseases of barley in Wisconsin caused by Helminthosporium, and their control. Wis.

Bean diseases.

The bacterial blight of the bean. The effect of environmental factors on the disease, the nature of the causal organism, and the production of disease-resistant stock. N.Y. Cornell.

Studies on the bacterial blight of beans to determine the relation of the time of planting beans to the severity of the attack. N.Y. State.

Bean bacteriosis and anthracnose. The relative susceptibility of varieties. Minn.

The dry-rot of the bean (1) the nature and cause of the disease (2) the effect of soil environment. N.Y. Cornell.

Bean rust. To determine whether the rust of beans (Uromyces appendiculatus) can be carried from one crop to the next through seed. Ind.

The nature and control of Michigan bean diseases. Including (1) a study of bean mosaic; (2) a study of resistance of various bean varieties to anthracnose and mosaic. Mich.

To study the principal diseases of beans in the State and to perfect methods of control of Bacterium phaseoli. Okla.

Investigations on the bacterial disease of the lima beans; life history and possible means of control. N.Y. Cornell.

Blackberry diseases.

To determine the facts with reference to the life history and pathology of the orange rust of blackberries and raspberries. Ind.

Cabbage diseases.

Cabbage disease investigation. To determine the relative economic importance of the various cabbage diseases in the market, garden and kraut crops of cabbage in Indiana with particular reference to yellows, club root, blackleg, black root and early blight. Ind.

Cabbage diseases. Tex.

Diseases of cabbage affecting the seed growing industry; methods of control. N.Y. Cornell.

Club root of cabbage. Penn.

Club root of cabbage and allied plants. A study of disease resistance and of soil treatment in relation to club root. Vt.

The determination of the cause, effect on host, control and importance of wire stem on cabbage seedlings occurring at Eden Valley. N.Y. Cornell.

Miscellaneous truck crop diseases, including lettuce drop (Sclerotinia libertiana) and black rot (Bacterium campestris) and soft rot (Bacillus carotovorus) of cabbage. Minn.

Cabbage yellows. Work on control measures. Iowa.

Cabbage breeding for the control of yellows. Iowa.

Cantaloup diseases.

Study of bacterial wilt, soil wilt and leaf spot of watermelons, cantaloups, and cucumbers. Del.

Carrot diseases.

Investigation of a carrot blight. Etiological, pathological, symptomatic, and therapeutical studies of the disease with morphological, physiological, and taxonomic studies of the pathogene. Mass.

Cauliflower diseases.

Cauliflower diseases on Long Island; causes and nature of the diseases and extent of losses due to them. N.Y. Cornell.

Celery diseases.

Investigations relating to celery diseases. (1) Septoria apii as a pathogene. (2) Fusarium stunting of celery. Mich.

Celery diseases. (Cont.)

Investigation of celery root rot. N.J.

The comparative effectiveness of copper dust and spray for the control of celery blights. N.Y. Cornell.

Seed bed diseases of celery. Fla.

Cereal diseases, general. (See also specific grain diseases.)

Disease investigations with cereals and forage crops. Iowa.

A bacterial disease of cereals. Ark.

Bacterial diseases of grain, grasses, and soy beans and their control. Wis.

Imperfects on cereals and roots. Mainly on the host range of *Helminthosporium* causing a serious root and foot rot of wheat, barley, and rye and to determine the conditions under which the disease develops. Minn.

Investigations on grain rust. (In cooperation with the U.S.D.A.) Wis.

Rust of cereals. Including nature of resistance, the genetics of rust resistance, timothy rust, biologic specialization of cereal rusts, epidemiology of cereal rusts, and barberry eradication. Minn.

Life cycle studies. To determine the facts with reference to the sequence of spore forms in certain autoecious rusts. Ind.

Cereal leaf rust diseases investigations. To determine, with reference to leaf rusts of wheat, barley, and rye, their life history, fixity to hosts, biological forms, if any, and the relation of these to forms found on other related wild or cultivated grasses: Factors involved in their dissemination: Virulence on different varieties, a study of physiological and ecological factors in relation to host and parasite and an investigation of the possibilities of control through the development and by the selection or breeding of disease-resistant varieties or strains. Ind.

Studies of environmental conditions influencing the development of stem rust in the absence of an alternate host (barberry). Nebr.

Cytological and histological studies of cereals in relation to rust and smut attack. Calif.

Rust and smut control in wheat and other cereals and grasses. To investigate the life histories and characteristics of the rusts and smuts of cereal grains and grasses; to determine their chief modes of attack, the conditions under which they are most destructive and to establish proper methods of control. N.Dak.

Cereal diseases, general. (Cont.)

Studies of the behavior of and control methods for wheat rust, wheat, oats, and sorghum smuts; and corn smut and root rot. Kans.

Grain smuts investigation and control. To determine the influence of moisture content of soil, composition of soil, and temperature of soil with reference to organic matter, etc. on the entrance of smuts of cereals. Mo.

Control of smut diseases of cereals. Iowa.

Effect of fungicides used in the control of cereal smuts, (a) on destruction of smut spores, (b) on the viability of seed germs and (c) on the prevention of infection from bunt infested soils. Calif.

Smut treatments. The effect of different methods of treatment on the development of covered smuts. Minn.

Loose smut. Varietal susceptibility. Minn.

Cereal disease investigations, primarily stinking smut. (In cooperation with the U.S. Department of Agriculture). (Moro Branch Station) Oreg.

Breeding for control of bunt (Tilletia tritici). Calif.

Ergot of cereals. The relation between the disease on wild grasses and on rye and other cereals. Seed treatments. Minn.

Seed treatment of cereals. Ark.

Cereal diseases. Comparative studies of various methods of seed treatment and types of seed and seedling injury. (In cooperation with the Office of Cereal Investigations, U.S.D.A.). Oreg.

Barberry eradication. Minn.

Cherry diseases.

Leaf spot of cherry and plum and its control. Wis.

Spraying experiments for the control of the cherry leaf spot (Cylindrosporium podi). N.J.

A bacterial disease of the Wragg cherry. Colo.

Citrus diseases.

Citrus diseases- notably gumming, melanose, and stem end decay, anthracnose and blight. Fla.

Citrus diseases. (Cont.)

Investigations as to the causes, manner of development, and treatment of gum diseases of citrus and other fruit trees. Calif.

Citrus blast. Calif.

Citrus scab: Spraying experiments to determine the proper time for spraying, and the best sprays for the control of the disease. Fla.

Die-back in the Yuma citrus orchard. Ariz.

Soil and nutrition studies with reference to die-back of citrus. Fla.

Root diseases of citrus trees. Calif.

Observations and studies on internal decline of lemons. Calif.

To determine the causes of loss in citrus fruits and pineapples exported from Porto Rico. P.R.

Clover diseases.

The fungus diseases of clovers, sweet clover, and alfalfa. Iowa.

The study of corn root rot and Fusarium root rot of clover. Ohio.

Investigation of the nematode disease of red clover in southern Idaho. Idaho.

Coffee diseases.

Stilbella flavida control in coffee. To find a practical means of controlling or destroying Stilbella. P.R.

Corn diseases.

Corn disease investigations. To assist and promote investigations on certain corn crop losses and the disease responsible therefor. To determine the facts relative to the distribution of these diseases. To develop and test control methods and to breed disease-resistant strains and varieties. Ind.

Fusarium diseases of corn. Iowa.

A study of corn root diseases. S.C.

Corn root rot. Miss.

Experiments on corn root rot. Colo.

Corn diseases. (Cont.)

- A study of the root rot of corn. Including a study of the causal organisms in relation to this and other hosts, environmental factors and methods of control. N.J.
- Corn root rot, its control and relation to wheat scab. (In cooperation with the U.S. Department of Agriculture). Wis.
- The study of corn root rot and Fusarium root rot of clover. Ohio.
- Root and stem rots of corn. La.
- Root, stalk, and ear-rots of corn. Penn.
- Fusarium root, ear, and stalk rots of corn in New York State; causal organisms; life history; control. N.Y. Cornell.
- A study of the influence of the time of planting on the root, stalk, and ear diseases of corn. (In cooperation with the Bureau of Plant Industry, U.S.D.A.). Ill.
- A study of the influence of soil management and previous cropping on the root, stalk, and ear rot diseases of corn. (In cooperation with the Bureau of Plant Industry, U.S.D.A.). Ill.
- A study of the "frenching" disease of corn. Ky.
- Corn smut. Minn.

Cotton diseases.

- A study of the bacterial diseases of cotton. S.C.
- A study of cotton anthracnose. S.C.
- Effect of alkali on the resistance of Egyptian cotton to black arm and angular leaf spot. Ariz.
- The control of bacterial blight (angular leaf spot) of cotton. Ark.
- Effect of alkali on the resistance of Egyptian cotton to Ozonium omnivorum (Texas root rot). Ariz.
- Cotton rust experiments. To determine the effect of salt as compared with potash in preventing cotton rust on Mecklenburg clay loam soils. N.C.
- Investigations of the life history of the fungus, and test of wilt resistant varieties. La.
- A study of miscellaneous cotton diseases. S.C.

Citrus diseases. (Cont.)

Investigations as to the causes, manner of development, and treatment of gum diseases of citrus and other fruit trees. Calif.

Citrus blast. Calif.

Citrus scab: Spraying experiments to determine the proper time for spraying, and the best sprays for the control of the disease. Fla.

Die-back in the Yuma citrus orchard. Ariz.

Soil and nutrition studies with reference to die-back of citrus. Fla.

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Investigations of the life history of the fungus, and test of wilt resistant varieties. La.

A study of miscellaneous cotton diseases. S.C.

Forage crop diseases.

Diseases of forage crops and grasses. Determination of causes. Fla.

Disease investigations with cereals and forage crops. Iowa.

The control by seed treatment of certain pathological organisms causing diseases of certain southern forage crops, with special reference to the leaf spot of anthracnose of bur clover, the blight (*Ascochyta* and *Protocoronospora*) of vetch, the bacterial blight of soy bean, and the anthracnose of Sudan and Johnson grasses. Ala.

Forest and shade tree diseases.

Diseases of forest and shade trees and ornamentals. Ohio.

White pine blister rust. (In cooperation with the U.S. Department of Agriculture). Minn.

Blister rust of conifers. Penn.

Special study of the pine blister rust with reference to method of infection of white pine, the course of its development within the pine and the susceptibility of other species of pine to experimental infection. Conn. State.

Studies in white pine blister rust control. Minn.

Damping off of coniferous seedlings. Minn.

Oak and other cankers. Minn.

Bacteriose of poplar. Ariz.

Leaf spot of poplar. Ariz.

A gall disease of *Populus*. N.Y. Cornell.

Fruit diseases.

The brown-rot disease of orchard fruits, with special reference to the etiology of the disease. N.Y. Cornell.

Studies of fruit rotting sclerotiniae. Md.

Fruit spots and stains. Green spot, brown spot, and stains. Calif.

Some phases of dusting for control of fruit diseases. N.Y. Cornell.

Fruit tree diseases.

Investigation of brown bark spot disease of fruit trees. Mont.

A study of heart rots of orchard trees and methods of prevention. Survey in stone fruit orchards and experiments on efficiency of copper nails in the infection of pruning cuts. Oreg.

Fruit tree root rot investigations. A study of Armillaria root rot. Oreg.

Fire blight. Wash.

Investigation of physiological disorders of orchard trees, such as "spring injury" and "die-back". Oreg.

Fungicides. (See also Insecticides under Entomology.)

Toxic action of fungicides on parasitic fungi. N.H.

The effect of fungicides and insecticides on plants. N.H.

Stimulating influence of Bordeaux mixture on potato plants. N.J.

Study of fungicidal property of selenium and selenium compounds. Ill.

Field test with dry lime sulphurs and similar materials in insect and disease control work. Mich.

Dipping nursery stock in copper sulphate. Calif.

Fusarial diseases.

The Fusarial diseases of plants. Mo.

Fusaria causing wilt in Tennessee. Morphological, culture, and pathological study of the fungi. Tenn.

Grape diseases.

Rot of grapes. Ariz.

Grass diseases.

Diseases of forage crops and grasses. Determination of causes. Fla.

Bacterial diseases of grasses, grain, and soy beans, and their control. Wis.

Grass diseases. (Cont.)

Rust and smut control in wheat and other cereals and grasses. To investigate the life histories and characteristics of the rusts and smuts of cereal grains and grasses; to determine their chief modes of attack, the conditions under which they are most destructive and to establish proper methods of control. N.Dak.

Horse-radish diseases.

Investigation of horse-radish root rots. To determine their control by selecting disease-free roots for planting and the efficiency of controlling the root rots with corrosive sublimate and formaldehyde treatments. N.J.

Lettuce diseases.

Lettuce diseases. Tex.

Control of downy mildew of lettuce. Iowa.

Investigations of methods for controlling lettuce drop. Mass.

Miscellaneous truck crop diseases. Including lettuce drop (Sclerotinia libertiana and black rot (Bacterium campestris) and soft rot (Bacillus carotovorus) of cabbage. Minn.

Study of the nature, cause, and control of lettuce tip burn, particularly with reference to the relation of weather, associated organisms, and fertilizers; also varietal resistance. N.Y. Cornell.

A monographic study of two lettuce diseases- the bottom rot and the stunt. N.Y. Cornell.

Lettuce rot. Ariz.

Seed bed diseases of lettuce. Fla.

Melon diseases.

Anthracnose of melons. Ariz.

Mosaic diseases. (See also specific crops.)

A detailed study of mosaic of plants. Ga.

Transmission of the mosaic diseases. To determine, first, by what means the mosaics and allied diseases may be transmitted, and secondly, to what extent they can be transferred from one host species to another. N.Y. Cornell.

Mosaic disease of beans and other legumes: Nature, cause, control. N.Y. Cornell.

Muskmelon diseases.

Cucurbit disease investigations. To ascertain the relative economic importance of anthracnose, Fusarium wilt, and blossom end rot of the Indiana watermelon crop, the relative importance of anthracnose, alternaria leaf blight, and mosaic in the muskmelon crop of Indiana and to study methods of control and the efficacy of seed treatment. Ind.

Oat diseases. (See also Cereal diseases, general.)

Oat smut. Wash.

Oat smut control. Idaho.

Onion diseases.

Investigation of onion diseases. Mass.

Onion disease investigations. To determine which of the onion diseases are limiting factors in the yield and market value of the onion crop of Indiana. Ind.

Onion diseases and their control. Wis.

To determine the nature and seriousness of the onion pink root disease; control measures, including soil treatment and selection for resistance. N.Y. Cornell.

Onion smut control investigations. Oreg.

Storage rots of onions. Tex.

Pea diseases.

Investigations of pea blight. Wis.

Investigations of pea diseases. (1) Fusarium root rot. (2) Rhizoctonia collar rot. N.Y. Cornell.

Pea root rot of Delaware and its control. Del.

A study of the root rot of the field pea. Including a study of the causal organisms in relation to this and other hosts, environmental factors and methods of control. N.J.

Root rot of peas. To determine the causes and to select strains resistant to the disease. Md.

An inquiry into some of the soil, fertilizer and crop rotation conditions that may induce or aggravate the wilt disease of the garden pea. Md.

Peach diseases.

Peach diseases. Utah.

Means for the control of bacterial spot of the peach. Va.

Relation of brown rot to peach twigs. N.J.

A study of the life history and control of brown rot and curculio. Ga.

Spraying investigations. Relative value of different spraying dates for peach leaf curl control. Oreg.

Relative effectiveness of copper sprays and sulphur sprays for peach leaf curl control. Oreg.

Peach yellows and little peach. N.J.

Diseases of the peach and their control. Study of the cause of little peach, peach yellows, or rosettes. Del.

Pear diseases.

Fire blight of pear. Ariz.

A study of the causes for resistance of certain species and varieties of pears to fire blight. Oreg.

Study of resistance of pears to blight. N.Y. Cornell.

Blight resistance in pears. Relative resistance or susceptibility to pear blight of all known species of Pyrus. (Talent Branch Station) Oreg.

The determination of the cause of resistance and susceptibility of different species of pears to blight. Work is directed along morphological and micro-chemical lines. N.Y. Cornell.

Breeding pears for resistance to pear blight. Ga.

Pear blight control with special emphasis on horticultural methods. Calif.

Spraying experiments for the control of the pear fruit and leaf spot. N.J.

Pecan diseases.

Study of a pecan disease. Fla.

Pecan scab studies. Miss.

Pepper diseases.

Bacterial disease of peppers. Fla.

Investigation of fruit rot of peppers. Ga.

Sclerotium wilt of the pepper. Investigations of the life history of the fungus, effects of environmental factors; survey of host plants affected. La.

Identification and life history and control of organism causing chili blight. N. Mex.

Pineapple diseases.

Pineapple diseases- wilt. (a) Isolation and study of the organisms present; (b) study of conditions favoring the disease; (c) importation of varieties; (d) experiments looking toward control. Fla.

To determine the causes of loss in citrus fruits and pineapples exported from Porto Rico. P.R.

Plant disease survey.

Plant disease survey. Minn., S.C.

Plant disease survey. (In cooperation with the Bureau of Plant Industry, U.S.D.A.). Ark., Tex.

Plant disease survey. Special attention given to diseases of the sugar beet. Utah.

Plant disease survey including foot rot of wheat, California blight of cherries, bacterium blight of raspberries, Fusarium rot of onions, violet Rhizoctonia, and other new or little known diseases. Wash.

Plant disease survey of the State. Del.

Plant disease survey. Records annually, through correspondence and observations as to prevalence and severity of plant diseases through Oregon. Oreg.

Plant disease survey work. Penn.

Plum diseases.

Leaf spot of cherry and plum and its control. Wis.

Rot of plums. Ariz.

Experimental plum spraying. To determine the comparative effectiveness of dust and liquid sprays for the control of brown rot of plums. Minn.

Potato diseases. Irish.

Potato disease investigations. Ind., Ohio, Wis.

Discovery of the cause, distribution, and control of little known potato diseases. N.Y. Cornell.

Potato disease investigations. To determine which potato diseases are limiting factors in the production and market value of the potato crop in Indiana and to determine the effectiveness of seed disinfection and spraying as a control measure for potato diseases in the State. Ind.

To determine the cause of the spots in potato fields, commonly attributed to lightning. These injuries are sometimes attributed to a phoma which commonly occurs on the dead plants. Work is being conducted on the effect of electro currents on plants, and on inoculations with the fungi found associated with the dead plants. N.Y. Cornell.

Potato diseases in relation to seed and crop production. Iowa.

An investigation of potato diseases which attack the tuber internally, particularly a study of the organisms associated with wilt and stem end rot. N.Dak.

Tuber and leaf diseases of potatoes. (Northwest Experiment Farm) Minn.

Investigations of tuber-borne diseases of the potato. N.J.

Seed treatment of Irish potatoes. Ark.

The effect of various dusts in comparison with Bordeaux spray, on early blight, late blight, and tip burn of potatoes. N.Y. Cornell.

Dusting v. spraying of potatoes for the control of blights and insect pests. N.Y. State.

Control of foliage diseases of the potato by application of Bordeaux mixture. N.J.

Test of spray materials for potatoes. Mass.

Potato diseases. To compare tubers produced under vines, sprayed with those not sprayed the preceding year; to determine the comparative value of different methods of treating tubers for controlling black scurf. Minn.

Seed potato treatment for control of black scurf. Penn.

Dry storage rot of potatoes caused by Fusarium coeruleum. Oreg.

Storage rots of Irish potatoes. Tex.

Potato disease investigations. Including scab, Rhizoctonia, blackleg, mosaic, and hopper-burn. (Upper Peninsular Substation) Mich.

Potato diseases, Irish. (Cont.)

To determine the etiology and control of Michigan potato diseases. Including seed treatment methods, soil treatments for potato scab investigations of Bacillus atrosepticus causing blackleg and the development of mosaic and leafroll-free strains of potatoes. Mich.

The potato wart disease and its control. Penn.

Relation of external conditions to infection and development of the potato wart disease caused by chrysophlyctis. N.Y. Cornell.

Communicability of leaf roll of potato. Penn.

Studies upon the leaf roll of potato. Penn.

Degenerative diseases of potatoes. An attempt to determine the possibility of detecting the presence of mosaic, leaf roll, and other foliage degenerative diseases by the inspection of the seed. Vt.

An investigation of mosaic and leaf roll of the potato under Idaho conditions. Idaho.

Work on potato diseases. Including late blight, mosaic, and leaf roll. Attention also given to seed certification. N.H.

To determine whether leaf roll and mosaic of the potato can be controlled by isolating the seed plat and roguing it thoroughly. N.Y. State.

A study of the leaf roll and mosaic diseases of potatoes, particularly the relation of potato mosaic to diseases of other plants, the causes of mosaic and leaf roll diseases of potatoes, the influence of various factors on the symptoms of these diseases, and the control of these diseases by roguing, isolation of disease-free strains, and other methods. N.Y. Cornell.

Preliminary studies on the cause, distribution, and importance of leaf roll, mosaic disease, net necrosis and similar troubles of potatoes in Maine. Me.

Potato net necrosis and leaf roll. Culture and histological work, to determine the relationship of the two diseases. (Aroostook Farm) Me.

Potato mosaic. Investigations including its transmission, immunity or resistance, effect of fertilizer variation, its economic importance, the relation of potato mosaic to other forms of potato disease and to mosaic of other plants and control measures. (Aroostook Farm) Me.

Potato scab. Ariz. Vt.

Physiological studies of potato scab. N.J.

Potato diseases. (Cont.)

Investigations in potato culture. Seed treatment for scab. (Northeast Demonstration Farm) Minn.

Investigations of the use of elemental sulphur for the control of Actinomyces chromogenus G., the cause of common scab of the Irish potato. N.J.

Potato wilt. To determine the efficiency of roguing and hill selection in the control of the disease. (Aroostook Farm) Me.

Fusarium wilt of potatoes. N.Y. Cornell.

Environmental conditions as related to the infection and progress of Fusarium wilt and tuber rot of potatoes. Nebr.

An investigation of species of Fusarium in relation to field wilt and rotting of potato tubers. Mont.

Potato diseases. Studies of Rhizoctonia and Fusarium wilt. Utah.

Rhizoctoniosis of potato. Ariz.

Rhizoctonia disease of potatoes. Me.

The control of Rhizoctonia of the potato. N.Y. Cornell.

Experiments in the control of Rhizoctonia of the potato. Idaho.

Verticillium wilt of potatoes. Oreg.

Bacterial blight of Solonaceae (Smith's brown rot). Fla.

Potato investigations. Spraying for early blight. (West Central Substation) Minn.

A study of "calico" and russet dwarf diseases of potato. Idaho.

Spindling sprout disease of the potato tuber. Md.

Raspberry diseases.

To determine the facts with reference to the life history and pathology of the orange rust of blackberries and raspberries. Ind.

Rhubarb diseases.

A rhubarb disease. Penn.

Rice diseases.

Diseases of rice. "Straight head". (Rice Experiment Station) La.

Root knot.

Root knot control. Ark.

Control of nematode root knot. Fla.

Investigation of the root knot nematode and its relation to various host plants.
Ga.

Root rot diseases.

Root rot investigations. (Hood River Branch Station) Oreg.

Root rot diseases of New Mexico crops. To obtain information as to the cause, nature, and control of these diseases. N.Mex.

Texas root rot investigations. To learn the cause of Texas root rot of cotton, sweet potato, alfalfa, and cowpea. Tex.

Rye diseases. (See also Cereal diseases, general.)

Control of nematode disease of rye. Va.

Seeds, as disease carriers, treatment, etc. (See also diseases of specific crops.)

Diseases of seeds: To find diseases that are carried in the seed and means of disinfecting seed-carrying parasitic diseases, and to study the trouble due to immaturity. Md.

Small fruits, diseases of.

Cane fruit disease investigations with special reference to anthracnose and crown gall. Wis.

Sorghum diseases. (See also Cereal diseases, general.)

Sorghum smuts and methods of control. To compare the two common smuts, kernel and head, of the sorghum group and determine methods for their control. Okla.

Soy bean diseases.

A bacterial disease of soy beans. A study of a little known bacterial disease of soy beans with special reference to cause, symptoms, dissemination, cultural, and inoculation studies, relation to leaf spot of velvet beans and other legumes, and means of prevention and control. N.C.

Bacterial diseases of soy beans, grasses, and grain, and their control. Wis.

An experimental study of infection of soy bean by Fusarium tracheiphilum growth. Tenn.

Spinach diseases.

Spinach diseases. Tex.

Strawberry diseases.

Leaf spot of strawberries. Ariz.

Sugar beet diseases.

Sugar beet diseases. Utah.

Curly leaf in sugar beets. A study of the local food plants of the sugar beet leaf hopper Eutettix tenella; a study of the hibernation of this insect and of its habits of migration; together with data on the occurrence of curly top at several points in western Nevada and of the severity of losses caused by this disease. Nev.

The entomology and parasitology of curly leaf of sugar beets. A study of the internal anatomy and histology of nonvirulent and virulent leaf hoppers. Calif.

Plant disease survey. Special attention given to diseases of the sugar beet. Utah.

Sugar cane diseases.

Sugar cane diseases. Including mottling disease or mosaic. A study of the life history of the organisms causing the various diseases, the effect of the different fungi on the germination of cane, effect of treating canes with disinfectants to increase the germination, distribution of the mottling disease in the State and a study of its cause, methods of dissemination and possible control. La.

To determine if insects transmit mottling disease in sugar cane, and if so what insects. P.R.

Sunflower diseases.

Fungal diseases of the sunflower. (a) The organism causing the rot; (b) control measures. Calo.

Sweet clover diseases.

The fungus diseases of clovers, sweet clover, and alfalfa. Iowa.

Sweet potato diseases.

Sweet potato diseases. Miss.

Mosaic of sweet potatoes. Ark.

Investigation of the rot diseases of the sweet potato. Del.

Sweet potato diseases and storage. Tex.

Varieties of sweet potatoes best suited to the section and also a study of the control of various diseases. Okla.

Tobacco diseases.

Tobacco disease investigations. Ky.

Wildfire, a bacterial disease of tobacco. Conn. State.

Disease experiments with "wildfire" of tobacco. (Chatham Station) Va.

Tobacco speck disease. A disease first called speck and later designated as tobacco wildfire. The study includes the etiology, symptomatology, factors influencing infection, agents of dissemination, manner of hibernation, hosts, cultural studies of the organism and experiments on prevention and control. N.C.

Investigation on control of tobacco wildfire. Agencies and methods of dissemination, methods of infection and conditions governing same and control measures for seed bed and field. Mass.

Tobacco diseases, including "wildfire" and angular leaf spot. Va.

A study of leaf spot diseases of tobacco. (In cooperation with the U.S. Department of Agriculture). Wis.

Investigation of the Fusarium wilt of tobacco. (In cooperation with the U.S. Department of Agriculture). Wis.

Investigation of the Fusarium root rot of tobacco. (In cooperation with the U.S. Department of Agriculture). Wis.

Tobacco diseases. (Cont.)

Tobacco root rot control. Ohio.

A study of tobacco root rot in Georgia. Ga.

Investigations of the root rot disease caused by Thielavia. (a) Development of Wisconsin strains of tobacco resistant to root rot; (b) development of root rot resistant White Burley tobacco for Kentucky and other districts; (c) relation of rotation of host plants and non-host plants of Thielavia on the severity of the Thielavia root rot disease of tobacco; (d) inheritance of disease resistance in tobacco to the root rot disease caused by Thielavia. (In cooperation with the U.S. Department of Agriculture). Wis.

Study of soil reaction as a means for the control of root rots of tobacco. Mass.

Investigations of "must" of tobacco. (In cooperation with the U.S. Department of Agriculture). Wis.

Investigation of the "shed-burn" of tobacco. (In cooperation with the U.S. Department of Agriculture). Wis.

Tomato diseases.

Tomato diseases. Tex., W. Va., Miss.

Investigation of tomato diseases. (1) Influence of soil moisture on blossom end rot; (2) nature and cause of the stripe disease. N.Y. Cornell.

Studies on some bacterial diseases of tomato. Penn.

Seed bed diseases of tomatoes. Fla.

Tomato diseases, especially Septoria leaf blight and the Phytophthora blight, and means for the control of these diseases. Va.

Studies upon the Septoria leaf spot of tomatoes. Penn.

Control of Septoria leaf spot of tomato. Ind.

Tomato disease investigations. To determine (1) which tomato diseases, other than the Fusarium wilt and the Septoria leaf spot are limiting factors in the production and market value of the tomato crop in Indiana; (2) whether or not certain disease-producing fungi, especially the form causing Septoria leaf spot are carried with the seed; (3) the source of the primary infection of Septoria leaf spot whether due to infestation of seed, seed bed and hot bed or field soil, with special reference to origin of the disease in the field (diseased or contaminated transplants, over-wintering of fungus in the field or spread from neighboring fields); (4) the mode of spread of Septoria leaf spot in the field (rain water, surface drainage water, wind, cultural practices); and (5) the possibility of control of Septoria leaf spot. Ind.

Tomato diseases. (Cont.)

Control of tomato leaf spot. Del.

Tomato bacterial spot or canker. Ind.

Studies on the canker disease of tomatoes. Penn.

Tomato mosaic control. Ind.

Investigation of the cause or causes of wilt disease of tomato and selection of resistant strains. Tenn.

Resistance of tomato to Fusarium wilt. Tenn.

The Fusarium wilt of tomatoes. Method of infection, factors governing infection, and relation of cell structure of host to resistance; and also to develop resistant varieties of tomatoes. Ga.

Fusarium wilt resistant tomatoes. To secure strains of canning tomatoes that will yield well on land infected with the wilt fungus prevalent in Maryland. Md.

The investigation of the life history of the fungus causing tomato wilt. A comparison with the Fusarium species causing other wilt diseases, effect of environmental factors such as temperature, etc. on the development of the disease, a test of wilt resistant varieties, selection for wilt resistant strains. La.

Tomato blight. Study of the life history of Septoria lycopersici. Md.

Experiments in the control of the western yellow tomato blight by breeding and selection. Idaho.

Tomato diseases, including western yellow blight and tomato mosaic. Oreg.

Tomato blight and related diseases. Wash.

Winter blight of tomatoes. Penn.

Control of leaf blight of tomato. To devise practical methods for controlling Septoria leaf blight of tomato under field conditions. Md.

Tomato spraying experiment. The use of various fungicides for the control of leaf mold (Cladosporium fulvum). N.H.

Vegetable diseases, general.

Studies of diseases of certain truck crops caused by Sclerotinia and Botrytis. Penn.

Diseases of greenhouse vegetables. Ohio.

Vegetable diseases, general. (Cont.)

Canning crop diseases. Especially Rhizoctonia on the tomato. Methods for its control. Diseases occurring in hot bed with methods for their treatment. Utah.

Walnut diseases.

Walnut blight, investigation for control at Riverside, Whittier, Anaheim, and Montalvo. Calif.

Watermelon diseases.

Study of bacterial wilt, soil wilt, and leaf spot of watermelons, cantaloups, and cucumber. Del.

Diseases of the watermelon and their control in Texas. To determine the cause of blighting and its relationship with anthracnose, to determine the cause of blossom-end rot, the life history of Colletotrichum lagenarium and other organisms, and to determine the pathology, morphology, physiology, and cytology of affected plants. Tex.

Cucurbit disease investigations. To ascertain the relative economic importance of anthracnose, Fusarium wilt, and blossom-end rot of the Indiana watermelon crop, the relative importance of anthracnose, alternaria, leaf blight, and mosaic in the muskmelon crop of Indiana and to study methods of control and the efficacy of seed treatment. Ind.

Wheat diseases. (See also Cereal diseases, general.)

Wheat smut. Methods of control. Seed treatment. To determine the cause of, and possible methods of controlling various forms of smut explosions and the possibility of catching and destroying a large percentage of the smut at the threshing machine in an effort to reduce the amount of soil contamination. Wash.

Varietal resistance of wheat to stinking smut. (In cooperation with the Office of Cereal Investigations, U.S.D.A.). (Union Branch Station) Oreg.

The relation of soil moisture content to bunt or stinking smut infection in wheat. Idaho.

Control of stinking smut of wheat. Mich.

Experiments with various chemical dusts for the control of bunt in wheat. Idaho.

Eradication of loose smut in barley and wheat. Mich.

Cereal diseases. Control of loose smut of wheat. Va.

Wheat diseases. (Cont.)

Investigation of take-all of wheat, presumably caused by a species of *Ophiobolus*. N.Y. Cornell.

Control of nematode disease of wheat. Va.

Study of certain wheat diseases as related to the deterioration of wheat and the reduction in yield. Tenn.

To determine the resistance of wheat varieties to scab. Minn.

Corn root rot, its control and relation to wheat scab. (In cooperation with the U.S. Department of Agriculture). Wis.

Hot water treatment of wheat. To determine the effect of hot water treatment of seed wheat, on yield, on the seed-borne diseases of wheat other than loose smut and as a possible stimulant independent of disease control. Ind.

An investigation on seed and seedling diseases of wheat, particularly as associated with Fusarial and Helminthosporial blights. N.Dak.

Yellowberry in wheat. The cause of yellowberry in Turkey Red wheat in the Columbia Basin. (Branch Station) Oreg.

Yellowberry in Montana wheat. Cause and control. Mont.

Diseases of plants, miscellaneous.

Miscellaneous diseases of trees and crops. Iowa.

Miscellaneous plant diseases. Kans.

Miscellaneous plant pathology studies. Ariz.

General plant disease surveys and investigations, including greenhouse diseases, truck crop diseases, and diseases of other crops. Mich.

Minor plant diseases, including crown gall of fruit trees, disorders due to climatic and soil conditions, nematode (eelworm) disease of strawberry and clover, bean mosaic, black rot, and frog-eye leaf spot of apples, blossom and spur blight. Sunflower stem rot. Oreg.

Routine examination of material sent to the citrus experiment station and minor studies in mycology and bacteriology. Calif.

A systematic study of the important, so-called physiological diseases of plants occurring in California. Calif.

Investigations of plant diseases in Hawaii. To identify the principal plant diseases and develop methods for their control. Hawaii.

Diseases of plants, miscellaneous.

The relation of air and soil conditions to infection and progress of certain plant diseases. (In cooperation with the U.S. Department of Agriculture.). Wis.

Study of soil temperature and climatic conditions in their relation to the prevalence of imported plant diseases in Texas. Tex.

Relation of soil temperature to soil parasites and other organisms, including cabbage yellows, flax wilt, tomato wilt, potato Rhizoctonia, legume tubercles. Wis.

Relation of parasitic fungi and bacteria to their host plants. Va.

Investigations in pathology and control of root and seed infecting diseases, particularly of flax, cereals, and small grains. To establish the relationship of root and seed infecting diseases of small grains and farm crops of North Dakota, particularly of flax, cereals, and grasses, to the methods of cropping and to determine means of control and to prevent accumulation thereof in the seed and in the soil. N.Dak.

To ascertain the best method of restoring the usual green color of trees and vines affected with chlorosis. N.Mex.

Study of the more serious fungus diseases of greenhouse crops. Ill.

Plant disease control on market garden crops. (Market Garden Field Station) Mass.

Seed bed diseases. Fla., N.J.

Rust investigations. To describe all species of rust, occurring in North America including Central America, the Canal Zone and the West Indies, which have not been previously published. Ind.

Miscellaneous rust investigations: To increase our knowledge of plant rusts through studies of their life history, morphology, cytology, physiology, taxonomy, with special reference to those phases of the subject that will contribute to a better understanding of the general biology, phylogeny, and pathology of the group. Ind..

Life history and cultural studies. To determine through field observations and through greenhouse and field infection experiments, the life history of certain rusts and to contribute to the knowledge of the facts with reference to biological forms and to the influence of the host on the morphology of the rust. Ind.

ECONOMIC ZOOLOGY.

(See also Veterinary Medicine, parasites; Entomology, mites, red spiders, and ticks
Birds.

Crow control. To determine kinds of food and feeding ranges, roosting and nesting habits, range of egg laying, incubation and development, approximate benefit, damage done, and methods of control. Okla.

The artificial propagation of the canvasback, the wood duck, the pin tail and teal, the bobwhite and California quail, the golden and Amherst pheasants, the ruffed grouse and other ornamental waterfowl and game birds. N.Y. Cornell.

Life histories of birds of eastern North America. N.Y. Cornell.

The migration of birds. N.Y. Cornell.

The natural food of water fowl. N.Y. Cornell.

Methods of attracting birds. N.Y. Cornell.

Crawfish.

A systematic and biologic study of the crawfish of Mississippi, with special reference to species injurious to agriculture, and to the means of controlling them. Miss.

Fish.

Breeding and cultural experiment with bullhead catfish. N.Y. Cornell.

Breeding experiments looking toward the production of a strain of warm-water trout that may be raised in an ordinary fish pond. N.Y. Cornell.

Breeding disease resistant brook trout. N.Y. Cornell.

Economical production of living food for fish. N.Y. Cornell.

Conversion of vegetable pulp into fish food through the agency of herbivorous fly larvae (larvae of Muscinae and others). N.Y. Cornell.

Studies in milk waste (1) for utilization of wastes for the production of fish food (2) the effect of milk on fish and other aquatic life. N.Y. Cornell.

Nematodes. (See Diseases of plants, root knot.)

Oysters.

Scientific methods of oyster culture. N.J.

Rodent and other mammals.

Effect of rodents upon grazing ranges, with special reference to the kangaroo rat. Ariz.

Rodent investigations. A study of the distribution, biology, injury, and means of control of the more important rodent pests of Nebraska, including house rats and mice, pocket gophers, prairie dogs, ground squirrels, and kangaroo rats. Nebr.

Life histories of and control measures for injurious mammals. Kans.

The economic status of certain field vertebrates in Minnesota. Minn.

The pocket gopher (Thomomys bulbivorus). Life history, nature, and extent of damage to crops, suitable bait for poisoning, poisoning in field and in captivity, distribution of poison. Oreg.

House rat control and rat campaign. Minn.

Protection against field mice. Studies on the breeding habits of *Microtus* and *Peromyscus*. Minn.

The natural history of the lowland marmot (Marmota flaviventer avara). Wash.

The Townsend mole. Life history, nature, and extent of damage to crops, suitable bait for poisoning, poisoning in field and in captivity, distribution of poison. Oreg.

Miscellaneous.

The zoological geography of Washington, including the leaf roller and service work. Wash.

To make a survey of and collect biological and economic data upon native and introduced plants and animals of the State, their distribution, habits, and agricultural importance. N.Dak.

Studies of the physiological phases of reproduction in guinea pigs. Kans.

The banding of birds and bats. N.Y. Cornell.

Gymnostomine protozoa. N.Y. Cornell.

Chlamydodon, a marine ciliate protozoa. N.Y. Cornell.

ECONOMIC ENTOMOLOGY.

Alfalfa insects. (See also Field crop and specific insects.)

Insects injurious to alfalfa. Life history and introduction of the parasite from Utah. Nev.

An investigation of the relation of insects to the blight of alfalfa and clover seeds. Idaho.

Insects injurious to alfalfa. Study of various hay worms. Kans.

A study of the alfalfa weevil with the purpose of developing more effective methods for its control. Idaho.

Ants.

Ants of Colorado in their relation to plant lice. Colo.

Aphids. (See also insects of specific plants.)

Investigations on plant lice. Colo.

Ecological and life history studies of Aphididae, with special reference to the alternate food plants of migratory species. Me.

Biochemical, morphological, and systematic study of aphids. Tex.

Ants of Colorado in their relation to plant lice. Colo.

Studies on the bionomics and control of the plant lice affecting orchard fruits in Idaho. Idaho.

A biological study of the oyster-shell bark louse. N.Y. Cornell.

The woolly aphid. Ark.

Life history of Aphis prunifoliae as related to season. Kans.

Laundry soap in water as remedy for aphids. To determine strengths at which this is fatal to aphids without injury to plants, as a simple remedy for use in gardens and other small areas where few plants are involved. N.C.

Apple insects. (See also specific insects.)

An investigation of aphids injurious to apples. (a) Field spray tests; (b) the biology and habits of aphids as influenced by atmospheric conditions and their effect on the prevalence and activities. A study of host relationship. Oreg.

Apple insects. (Cont.)

Apple woolly aphid. A study of the life history, relationships, host, etc. Ark.

The lesser apple worm. Determination of local distribution and the factors governing it and study of the feeding habits of the larvae, together with the wild hosts of the species. Ark.

A study of the apple tree borers and their control with the new insecticide paradichlorobenzene. N.Y. Cornell.

Control of apple and peach tree borers. W. Va.

Bionomics and control of the apple leaf skeletonizer (Canarsia hammondi) and the bearing of the data obtained on other related species. Md..

The apple leaf roller. Utah.

Leaf rollers and fruit worms of apple and pear. Study of species and tests of different sprays and time of spraying for control. Oreg.

A study of the leaf rollers injurious to the fruit and foliage of apple in Pennsylvania. Penn.

Spraying for apple maggot. To determine the efficiency of spraying with arsenate of lead as a means of control of the apple maggot under New Hampshire conditions. N.H.

Apple flea weevil. Ohio.

An investigation of the life history, habits, and control of the bud moth (Tmetocera ocellana Schiff). Penn.

A study of Psylla mali, the apple sucker, a recently discovered pest in North America. N.Y. Cornell.

Dusting v. spraying. To determine the efficiency of dust methods of control of insects and fungus diseases of the apple. Ind.

Comparison of dusting and spraying for the control of insects and diseases on the apple. W.Va.

Army worms.

Army worms: Cirphis unipuncta and Laphygma frugiperda. Life history, habits, natural enemies, food plants, and control measures. N.C.

The grass worm or fall army worm (Laphygma frugiperda). Ala.

Bean insects. (See also Truck crop and specific insects.)

The Mexican bean beetle (Epilachna corrupta). A study of the insect under Alabama conditions and the importance of its control by natural methods. Ala.

Insect records. Including observations on the native stalk borer, the native corn ear worm, the European corn borer, bean weevil, gypsy moth, and brown tail moth N.H.

Bees.

Bee keeping in Arkansas. Ark.

Honey bees. Utah.

General observations of variable factors and conditions in bee keeping, honey plants, etc. Ariz.

Winter protection of bees. Md.

Winter packing of bees. S.C.

Methods of wintering bees; relation of physical characters of bees to honey production. Kans.

Study of proper conditions for bee cellars. Wis.

Purchasing combless bees in spring compared to wintering full colonies. Iowa.

Experimental apiaries. Queen cell production and management and the effect of honey flows upon the cell-building instinct. Tex.

Artificial fertilization of queen bees. Okla.

Total reproduction and comparative reproductive capacity of the Carniolan, Italian, Caucasian, and "Banat" queen bees. Okla.

A comparison of Italian, Carniolan, and Caucasian bees as honey producers. Iowa.

Honey bees: To encourage the bee industry by demonstrating methods and appliances for handling bees; rearing and distributing queen bees; investigate methods of increase and to keep record of honey production. Guam.

To develop an experiment station apiary to ascertain the best type of bees for Oklahoma. The value of bees in the fertilization of alfalfa. Okla.

To effect greater production of honey per colony. To determine the amount of increase in honey production by building up colonies previous to honey flows by judicious manipulation of brood. P.R.

Bees. (Cont.)

Experimental apiaries. Studies of regional bee control. Tex.

Experimental apiaries. To test the practicability of reversing newly drawn brood combs during the pupation period of the first crop of brood to prevent injury to combs, due to sagging. Tex.

Experimental apiaries. The effect of size of hive upon the strength and productiveness of colonies. Tex.

A study of honey production in a 20 frame packed hive. Iowa.

Time and labor factors involved in gathering, ripening, and storing honey by honey bees. Iowa.

The relation of tongue length and body size to the production of honey. Iowa.

Meteorological influence on honey production. Iowa.

Maintenance of bees in greenhouses. Md.

A study of the nutrition of the honey bee. Minn.

To investigate the relative susceptibility of the honey bee to compounds of arsenic, with special reference to the excessive mortality of bees following orchard spraying. Wash.

A study of the bacterial flora of the intestinal tract of the honey bee. Iowa.

A study of the bacteria which is found to be the cause of honey bee paralysis. The physiological characters of the bacillus. Okla.

Foul brood eradication. Tex.

Spread and control of American foul brood. Wis.

Experimental apiaries. To determine the possibilities of refining beeswax by centrifugal force. Tex.

To effect greater production of bees wax. To determine amount of increase in wax production by practicing certain manipulation of comb, supers and brood chambers, during certain seasons of the year, using checks for comparisons. P.R.

Honey plants in Iowa. Iowa.

Beet insects.

General insect investigations, including the beet web worm, the fruit tree leaf roller, and the cutworms. Colo.

Beetles. (See also Weevils and specific crops.)

Coleoptera- ecological and life history studies of Maine species of economic importance, with a view to remedial measures where injurious species are concerned. Me.

Annotated list of the Halticini of College Park and vicinity. To identify and list the flea beetles and study their food plants. Md.

A study of the Tachinidae of the Cayuga Lake Basin. N.Y. Cornell.

White grub investigations. Iowa.

The activities and injuries of the cloaked knotty horn beetle (Desmocirus palliatus). N.Y. Cornell.

The history of the nervous system of Osmoderma socialis. N.Y. Cornell.

The respiratory system of Osmoderma socialis. N.Y. Cornell.

Brown-tail moth.

Insect record, including observations on the native stalk borer, the native corn ear worm, the European corn borer, bean weevil, gypsy moth, and brown tail moth. N.H.

Cabbage insects. (See also Truck crop and specific insects.)

Experiments to determine the shrinkage in yields of cabbage as a result of attacks by the cabbage aphid and cost of spraying to secure efficient control. N.Y. State.

Investigation and control of injurious insects, mammals, and birds. Mainly on wheat aphids, Harlequin cabbage bug, grasshoppers, and red-tailed horse bot fly. Nebr.

Control of the cabbage or radish maggot. Ind.

The control of the cabbage maggot with corrosive sublimate. N.Y. Cornell.

Susceptibility of the cabbage maggot to corrosive sublimate. N.Y. State.

The cabbage maggot- Phorbia brassicae; life history, habits, and methods of control on cruciferous crops. Penn.

The susceptibility of the imported cabbage worm to dusting mixtures. N.Y. State.

To test and prove efficiency of dusting with arsenates to control cabbage worms. N.C.

Cane insects. (See also Field crop and specific insects.)

To determine insect pests of sugar cane, cotton, corn, and truck crops, together with a miscellaneous collection of insects from the Island. Virgin Islands.

To determine if insects transmit mottling disease in sugar cane, and, if so, what insects. P.R.

Control of white grubs in cane cultivation. To control ravages of white soil grubs in sugar cane cultivation. Virgin Islands.

Cherry insects.

Cherry aphid. Wis.

A study of the cherry fruit sawfly (Hoplocampa cookei Clarke) and its control. Calif.

Chinch bugs.

Chinch bug investigations. Mo.

Cicada.

The Cicadellidae of New York. N.Y. Cornell.

Citrus insects. (See also specific insects.)

The larger plant bugs on citrus, pecan, and truck crops. Fla.

Clover insects. (See Field crop and specific insects).

A study of the life history, habits, and methods of control of certain clover pests, especially the clover seed midge. N.Y. Cornell.

An investigation of the relation of insects to the blight of alfalfa and clover seeds. Idaho.

A biologic study of the clover seed caterpillar with a consideration of the methods of control. N.Y. Cornell.

A study of clover aphid and methods for its control. Idaho.

Codling moth.

Codling moth studies. Colo.

Studies of the life history and control methods of the codling moth. Idaho.

Investigations of the life history of the codling moth in New Mexico. N.Mex.

Codling moth studies. Life history study as a basis of effective spraying program for control. Oreg.

Testing out spray materials for the control of the codling moth. Idaho.

The codling moth. Wash.

Anatomy of the larva of the codling moth. N.Y. Cornell.

Study of the number of broods of the codling moth to determine the presence and importance of the second brood and whether it is necessary to spray for it. Mass.

The control of the codling moth. To give the life history data a practical test by spraying experiments. Ark.

Investigations of codling moth, particularly with reference to control measures. Wis.

Codling moth control. To set the optimum time for the August spray directed against the codling moth. Mich.

The codling moth. Ecology and control. Improved spray practices, new combination sprays, and better technique. Oreg.

A study of the life cycle of the codling moth and the best time and method of applying insecticides for controlling it. To ascertain if it is possible to improve the present methods of controlling the codling moth. Mo.

Codling moth. Studies of spraying dates. Ind.

Coffee insects.

To determine importance of various insects known to occur on coffee. P.R.

Study of coffee leaf miner. To find practical control measures, and to judge value of parasites in the coffee. P.R.

Coffee shade tree insects. To determine importance of insects found on coffee shade trees and to find practical remedies for injurious ones. P.R.

Corn insects. (See also Field crop and specific insects.)

Bionomics and control of the corn-root aphid Aphis maidiradicis. Md.

The corn plant louse (Aphis maidis). Study of life history. Okla.

Insects injurious to corn. The southern corn root worm or budworm. La.

Biology of the genus Diabrotica (corn root worm and melon beetle). Study of the economics and methods of control of the species of this genus. N.C.

Western corn root worm. Iowa.

Corn ear worm. Determination of the effect of the time of planting and varieties on the control of this insect. N.C.

An investigation to determine the life history, development and habits of the corn ear worm and practical methods of controlling its ravages. To find some means of preventing this pest from injuring field and sweet corn. It feeds on a wide variety of plants but its main injury is on corn. The old method of fall plowing is not entirely effective and the attempt is made to find some treatment of corn ears which will keep them out. Mo.

Corn earworm investigations. Studies of oviposition and corn varietal resistance. Kans.

Seasonal history of the corn ear worm. Iowa.

Control of the corn ear worm. Iowa.

Corn stalk borer (Diatraea saccharalis). Study of occurrence, distribution, destructiveness, life history, habits, natural enemies, and control measures. N.C.

A study of the life history, distribution, and means of control of the new corn borer. Iowa.

Insect record, including observations on the native stalk borer, the native corn ear worm, and European corn borer, bean weevil, gypsy moth, and brown-tail moth. N.H.

Insects injurious to corn. The weevil- Calandra oryza. La.

Black corn weevil (Calandra oryza). To determine whether corn is more injured when shocked or when left on stalk in row, increase or decrease of injury through winter, other field factors bearing on the injury. (Wenona) N.C.

Insect investigations. To determine insect pests of corn, cotton, sugar cane, and truck crops, together with a miscellaneous collection of insects from the Island. Virgin Islands.

Cotton insects. (See also Field crop and specific insects.)

A study of the life histories, habits, distribution in the State of Texas, effect of environmental factors and methods of control of insects affecting cotton. Tex.

Insect investigations. To determine insect pests of cotton, sugar cane, corn, and truck crops, together with a miscellaneous collection of insects from the Island. Virgin Islands.

A study of the influence of different factors on the hibernation of the boll weevil. S.C.

Cotton boll weevil. To determine spread year by year, habits, life history, and natural enemies under North Carolina conditions, control measures. (In cooperation with the Bureau of Entomology, U.S.D.A.). N.C.

Spraying for boll weevil. Ga.

Dusting as a means of boll weevil control. S.C.

Dusting cotton with calcium arsenate against cotton boll weevil. Ala.

Boll weevil control. Tests of calcium arsenate, both as a dust and spray, as well as mixed with molasses and applied by hand. Miss.

Biology of the *Thurberia* boll worm (*Thurberiphaga catalina*). Life history and relation to cultivated cotton. Ariz.

Cotton red spider control. To determine control measures for the red spider (*Tetranychus bimaculatus*) on cotton, best suited to Arkansas conditions. Ark.

Cowpea insects. (See also Field crop and specific insects.)

The cowpea aphid. Okla.

Cranberry insects. (See also Fruit and specific insects.)

Study of injurious and beneficial insects affecting the cranberry. (Cranberry Station) Mass.

Cranberry insects. Wash.

Crickets.

Distribution, life history, economic importance, natural enemies and control of the common field cricket (*Gryllus assimilis* Fab.). S.Dak.

Crickets. (Cont.)

Life histories, habits, and distribution of species of the genus *Cecanthus* found within the State; methods of control; bark diseases associated with tree crickets; parasites and predaceous enemies. Oreg.

Cucumber insects.

Control of the striped cucumber beetle (*Diabrotica vittata*). To determine the effectiveness of arsenicals with and without addition of baits; the value of contact sprays (timing of sprays dependent on life history); the practical value of trap crops; and the practicability of control during hibernation. Ark.

Studies on the control of the striped cucumber beetle [*Diabrotica vittata* Fab.] Ind.

Life history and control of the striped cucumber beetle. Ohio.

Cutworms.

Cutworms. Minn.

Life history studies of cutworms. Mont.

The life history of several common cutworms. Nebr.

Cutworms: Study of species occurring, life histories, habits, natural enemies, control measures. N.C.

Investigations on the variegated cutworm. Iowa.

General insect investigations. Including the beet web worm, the fruit tree leaf roller, and the cutworms. Colo.

False chinch bug.

The false chinch bug. The annual number of broods, time of hibernation, emergence, and best methods of control. Okla.

Field crop insects.

Field crop insects. Minn.

Field crop insects of southern Kansas. Life histories of kafir ant, seed corn maggot, and certain sorghum infesting insects. Kans.

Insects injurious to roots of staple crops. Studies of May beetles, *Lechnosterna scarbaediae*, wire worms and false wire worms. Kans.

Fleas.

A study of the fleas (Siphonaptera) of New York State. N.Y. Cornell.

Flies. (See also parasites, external.)

Ecology and life history studies of Maine species of diptera with special reference to economic species. Me.

The *Drosophila* flies. Life history and breeding habits. Minn.

Taxonomy of the Anthomyiidae. N.Y. Cornell.

Monograph of North American Plecoptera. N.Y. Cornell.

Biology of *Pollenia rudis*. Md.

A study of the horseflies of the State. Minn.

Investigation and control of injurious insects, mammals, and birds. Mainly on wheat aphids, Harlequin cabbage bug, grasshoppers, and red-tailed horse bot fly. Nebr.

A biological study of the family Tachinidae. To determine the relationship between the parasite and host; a study of the variation in species to determine its cause and development; life history studies. Tex.

A biological and systematic study of the Tabanidae, a very important family of blood-sucking flies. N.Y. Cornell.

The biology of the stone-fly genus *Nemoura*. N.Y. Cornell.

Anatomy of the larva of the crane fly *Tipula abdominalis*. N.Y. Cornell.

Life habits of *Syrphus* flies. Colo.

Control of root maggots. N.H.

House fly control. Minn.

Control of black flies. Including the distribution of the various species and observations on the hibernating habits. N.H.

Forest insects.

Insects of orchard, shade, and forest trees, with the best method of combating. Insect injury to pulpwood. Minn.

The boxwood leaf miner. Md.

Forest insects. (Cont.)

A study of the dogwood chionaspis, with special reference to its control.
N.Y. Cornell.

A detailed study of the distribution, injuries, life history, and habits of the European elm scale, with special reference to its control. N.Y. Cornell.

Life history study of the locust borer (Cyrtene robiniae). Ky.

The life history and habits of the maple leaf cutter. N.Y. Cornell.

Insect pests of western yellow pine. Control of western pine bark beetle. Oreg.

Fruit insects.

Orchard insect investigations. To adapt present knowledge and to discover better methods of effecting the control of insect species as they become sufficiently prominent to merit attention. N.J.

Small fruit insect investigations. To adapt present knowledge and to discover better methods of effecting the control of insect species as they become sufficiently prominent to demand attention. N.J.

Investigations and demonstrations in the control of insects attacking deciduous fruit trees in California. Calif.

To prevent borers from destroying fruit and shade trees. Including the pear psylla, fruit leaf roller, San José scale, grape leaf hopper, and other pests as they may appear. Mich.

General insect investigations. Including the beet web worm, the fruit tree leaf roller, and the cutworms. Calo.

Grape insects. (See also Fruit and specific insects.)

Life history and relationships of the grape leaf hoppers. Ky.

Studies on grape insects. To determine the comparative merits of dusting and spraying in controlling the grape root worm and leaf hopper. N.Y. State.

To ascertain the safeness of paradichlorbenzene to grapevines and its effectiveness against the grape root worm. N.Y. State.

Grass insects.

Grass and forage insects. Ohio.

Life history of the spittle insects which attack grasses. Conn. State.

Grasshoppers.

Grasshoppers. Utah.

Grasshoppers. Study of the atlantis group. Mont.

A study of the egg deposition of injurious grasshoppers of Iowa. Iowa.

Investigation and control of injurious insects, mammals, and birds. Mainly on wheat aphids, Harlequin cabbage bug, grasshoppers, and red-tailed horse bot fly. Nebr.

Orthoptera- ecological and life history studies of Maine species of economic importance, with a view to remedial measures, where injurious species are concerned. Me.

Grasshopper control. Colo.

Greenhouse insects.

Greenhouse insect investigations. To adapt present knowledge and to discover better means of controlling the species of insects injurious to greenhouse production, as their prominence and lack of knowledge of how to control them seems to demand attention. N.J.

Study in the control of insect pests in greenhouses. Including aphids, aleyrodidae, coccids, millipeds, and chrysanthemum midge. Mich.

The life history and control of the greenhouse mealy bug. Md.

The life history and control of the red spider. To study the life history under greenhouse conditions and to develop satisfactory methods of control. Md.

Gypsy moth.

Insect record. Including observations on the native stalk borer, the native corn ear worm, the European corn borer, bean weevil, gypsy moth, and brown-tail moth. N.H.

Hemiptera. (See also aphids, scale insects, leaf hoppers, and insects of specific crops.)

The Hemiptera of Connecticut. Conn. State.

Hemiptera- ecological and life history studies of Maine species of economic importance, with a view to remedial measures. Me.

Hemiptera. (Cont.)

Biological and ecological studies of certain North Carolina homoptera. Studies of the life history, including the various stages, seasonal history, habits and natural enemies of the harvest fly (Tibicen pruinosa), grass spittle bug (Thaspis bicincta), yellow headed leaf hopper (Draeculacephala reticulata), alfalfa tree hoppers (Stictoccephala spp.), and weed tree hopper (Campylenchia latipes). Artificial control methods. N.C.

Hessian fly.

Hessian fly investigations. Life history, control measures, and wheat varietal resistance. Kans.

The fall history of the Hessian fly, limits of the brood or broods if more than one. Ky.

To determine accurately the life cycle of the Hessian fly in Missouri, and the most effective methods of controlling it. Mo.

Hessian fly control. Ohio.

Household insects. (See also flies.)

Household insects. Species occurring, habits, life history, damage, control measures. N.C.

The fish moth. To determine the life history, systematic relationship, and methods of control of this pest. Okla.

The household cockroach Blatella germanica. Minn.

House fly control. Minn.

Hymenoptera.

Ecology and life history studies of Maine species of hymenoptera of economic importance. Me.

Investigation to determine the economic importance of digger wasps. Mass.

Scolidae of Belgian Congo. N.Y. Cornell.

Revision of the Thynnidae of Chile. N.Y. Cornell.

Insecticides and fumigants. (See also Horticulture, spraying, dusting, and fumigating.)

Orchard spraying. Insecticides. Minn.

Orchard insecticides. Iowa.

To determine the relative value of liquid and dry lime sulphate and miscible oils against the common and destructive scale insects. Ind.

Studies in the control of insect pests of dwellings and stored food. Including white ants, bed bugs, ants, carpet beetles, roaches, grain, and flour beetles and moths. Mich.

A study of the most practical methods for the mechanical distribution of poison dust for combating the alfalfa weevil with a view to a more even distribution of the poison and its more rapid application. Idaho.

Field test with dry lime sulphurs and similar materials in insect and disease control work. Mich.

Comparison of dry and liquid insecticides in controlling fruit insects. Kans.

Basis of insect resistance. Kans.

Progressive immunity of insects to insecticides. Wash.

Specific toxicity of various chemicals to insects and their hosts. Minn.

An investigation of the species factor in insect control by fumigation. Ala.

Study of the comparative toxic values of little-known insecticides and a comparative study of the powers of resistance of insects to poisons. Oreg.

Comparative insecticide tests. To study the lethal effect of new insecticides on plant tissues. Md.

Investigation of more recent insecticides and their value under Wisconsin conditions. Wis.

New dusts. Relative value and application for common garden insect pests. (In cooperation with U.S. Department of Agriculture). Wis.

Laboratory and field test with arsenicals and machines for applying the same. Mich.

Study of the chemistry of arsenical insecticides. Mass.

Investigations on zinc arsenite. Iowa.

Insecticide investigation. The chemical, physical, and insecticidal properties of commercial pine oils and creosotes and their action on various insects as well as on plants and the germination of seed. Md.

Insecticides and fumigants. (Cont.)

Control of insects by means of impregnation of the sap of plants with poisonous substances. W.Va.

Insect control by egg treatment. Colo.

Dormant spraying. To determine insecticides satisfactory for the control of scale insects at various parts of the dormant season, particularly insecticides which might be uniformly effective throughout the dormant season. Ark.

Fumigation. Calif.

Tests of the value of various spreaders for sprays under Idaho conditions. Idaho.

Study of causes of burning of foliage by insecticides. Mass.

The effect of insecticides and fungicides on plants. N.H.

Miscible oils and tree growth. W.Va.

Leaf hoppers.

Biology of the Homoptera (leaf hoppers). Study of the ecology, distribution, systematics and economics of the members of this group. N.C.

The entomology and parasitology of curly leaf of sugar beets. A study of the internal anatomy and histology of nonvirulent and virulent leaf hoppers. Calif.

The apple leaf hopper (Empoasca mali LeB.) life cycle, bionomics, and control on potato foliage. Penn.

Leaf miners. (See also insects of specific plants.)

Biology and control of the dipterous leaf miner Diarthronomyia hypogaea, chrysanthemum midge. Md.

A biological study of the dipterous leaf miners. N.Y. Cornell.

Leaf rollers.

Leaf roller investigation. (Hood River Branch Station) Oreg.

Lepidoptera. (See also insects of specific crops.)

Lepidoptera- ecological and life history studies of Maine species of economic importance with systematic work where necessary for definiteness. Me.

Melon insects. (See also Truck crop and specific insects.)

Injurious insect pests of the melon and related crops. Special attention directed to the striped cucumber beetle, the spotted beetle, the melon louse, the squash stink-bug and the squash vine borer. To determine what pests must be dealt with by growers of these crops and to develop a practical and effective means for preventing and controlling them. Mo.

Biology of the genus *Diabrotica* (corn root worm and melon beetle). Study of the economics and methods of control of the species of this genus. N.C.

Midges.

The study of the biology and control of the rose midge. (In cooperation with the Bureau of Entomology, U.S.D.A.). Md.

Studies of the violet midge (*Contariniae violicola*). Conn. State.

Mites. (See also insects of specific plants.)

Studies of the European red mite (*Paratetranychus pilosus*) and methods of destroying its eggs. Conn. State.

Spider mites on fruit trees. To determine species, distribution, and methods of control. N.Y. State.

Mosquitoes.

Mosquitoes and their control. Species occurring in State, distribution, abundance, habits, and control measures. N.C.

Mosquito control. To discover the principles which underlie mosquito breeding, mosquito flight in attraction to man, and to free the areas in New Jersey which are not seriously troubled with mosquitoes from the incubus of this pest. N.J.

A study of the mosquito fauna of the Cayuga Lake Basin. N.Y. Cornell.

An investigation of the malarial mosquito plague in Missouri. Mo.

Malaria-mosquito investigations. Calif.

Natural control. (See also phenological insect investigations.)

The biological control of injurious insect species, with particular reference to insect parasitism. N.Y. Cornell.

An investigation of the possibilities of artificial propagation and distribution of predaceous and parasitic insects. Oreg.

Natural control. (Cont.)

Studies of the California white-fly-eating lady bird beetle Delphastus catalinae, and attempts to further distribute the same. Fla.

Attempts to establish and distribute the Sicilian mealy-bug parasite Paraleptomastix. Fla.

Search and observation for promising parasites of scale-insects and Aleyrodidae, both fungus and animal. Fla.

A study of Tetrastichus asparagi, an important parasite of the asparagus beetle (Crioceris asparagi). N.Y. Cornell.

Nursery insects.

An investigation to determine what insects are injurious to nursery stock in the State, their life histories, distribution, injury and methods of control. Mo.

To ascertain a method of control of the woolly aphis, especially applicable to trees in the nursery. Md.

Odonata.

The dragon flies of Connecticut. Conn.

Onion insects. (See also Truck crop and specific insects.)

To study the control of the onion maggot. Mass.

An investigation of the life history, habits, and control of the onion maggot (Phorbia ceparum Meig). Penn.

Investigations of the onion thrips. Iowa.

Parasites, external. (See also flies, mosquitoes, and ticks.)

Insect parasites of man and animals. N.Y. Cornell.

A catalog, both host and parasite, of the parasites of insects. N.Y. Cornell.

Insects and parasites affecting live stock. The screw worm and wool maggot. (In cooperation with the Bureau of Entomology, U.S.D.A.). Tex.

Biting flies of cattle. Nev.

A study of the life history of the horse louse. Conn. Storrs.

Parasites, external. (Cont.)

Repelling stable flies. Md.

Value of fly repellant (pine tar creosote). Md.

Pea insects.

Investigations of pea moth. Wis.

Peach insects. (See also fruit and specific insects.)

Control of the peach tree borer. Ind.

The toxic reactions of the peach tree borer as affecting control. To ascertain the color reactions of adult peach tree borers. Md.

To ascertain the safeness and effectiveness of paradichlorbenzene for the control of the peach borer. N.Y. State.

A study of the control of the peach twig borer (Anarsia lineatella). Calif.

Control of peach and apple tree borers. W.Va.

The peach and prune root borer. Life history studies and tests of washes, sprays, paints, and protectors. Oreg.

The deforming of young peach fruits by capsids. N.Y. State.

A study of the life history and control of brown rot and curculio of peaches. Ga.

Peanut insects. (See also Field crop and specific insects.)

Study of the life history, habits and control of the principal insects of the peanut. Tex.

Thrips on peanuts. Fla.

Pear insects. (See also fruit and specific insects.)

Pear insects. Life cycles of various species with reference to period of occurrence of damage and characteristic injuries to fruits. N.Y. State.

The life history and methods of control of the pear sinuate borer. N.Y. State.

Leaf rollers and fruit worms of apple and pear. Study of species and tests of different sprays and time of spraying for control. Oreg.

Studies on the pear psylla and pear thrips. N.Y. State.

Pecan insects. (See also specific insects.)

The larger plant bugs on citrus, pecan, and truck crops. Fla.

Pecan insects. Study of economic importance, life history, habits, biology and control measures of insects affecting the pecan. N.C.

A systematic and biological study of insects affecting the pecan. Miss.

Phenological insect investigations.

Climate and insect investigations. To discover the general principles which underlie the response of injurious insects to the climatic complex and to develop important clues to new and better methods of insect control. N.J.

Relation of temperature to insect life. W.Va.

The relation of temperature and moisture to insect activity. S.C.

Life history of Aphis prunifoliae as related to season. Kans.

Plum insects. (See also fruit and specific insects.)

Control of plum curculio. Wis.

Potato insects. (See also field crop and specific insects.)

Potato insects. N.Y. Cornell.

Potato insects. To determine the susceptibility of such species as leaf hopper and aphid to dusting mixtures. N.Y. State.

The life history and methods of control of the potato leaf hopper. Iowa.

Potato spraying and flea beetle control. Determination of spraying program for best control of the flea beetle and other potato insects; also other methods of flea beetle control if needed. N.C.

Dusting v. spraying of potatoes for the control of blights and insect pests. N.Y. State.

Prune insects. (See also fruit and specific insects.)

The peach and prune root borer. Life history studies and tests of washes, sprays, paints, and protectors. Oreg.

Raspberry insects.

The life history of the raspberry fruit worm Byturus unicolor. Conn. State.

Red spider.

The life history and control of the red spider. To study the life history under greenhouse conditions and to develop satisfactory methods of control. Md.

An investigation of the life history, habits, and control of the imported red spider. Penn.

San José scale.

Control of San José scale in orchards. Ind.

The seasonal development of the San José scale and relative susceptibilities of the different life stages to certain insecticides. N.Y. State.

San José scale: Life history and control. To study the life history and the effectiveness of different scalecides in the control of this insect. N.Mex.

Commercial sulphur preparations as dormant sprays for the control of the San José scale. Tex.

Scale insects. (See also San José scale.)

Dates of hatching of scale insects, and fixing dates for spraying the same. Mass.

Scale insects of St. Croix and their control. To determine the number of species of scale insects and host plants of each, found on St. Croix Island. To use spraying experiments to effect a control for the insects. Virgin Islands.

Systematic and biological study of scale insects of Mississippi. Miss.

The Coccidae or scale insects occurring in the State. The species present, their distribution, hosts, natural enemies; and methods of control. La.

Investigations on the oyster-shell scale. Iowa.

Shade tree insects.

Shade tree insect investigations. Study of insects affecting elms and cedars. Kans.

To prevent borers from destroying fruit and shade trees. Including the pear psylla, fruit leaf roller, San José scale, grape leaf hopper, and other pests as they may appear. Mich.

Soy bean insects.

A study of insects affecting soy beans. Ohio.

Green clover worm (Plathypena scabra) on soy beans. Life history habits, natural enemies, and control measures. N.C.

Squash insects. (See also truck crop and specific insects.)

Control of the squash bug. Mass.

Control of the squash-vine borer. Mass.

Stored products insects.

Control of insect pests of growing crops, stored products and live stock, with special reference to the increase and conservation of food products. Md.

The use of cold storage in checking insect losses to dried fruits. Calif.

Studies in the control of insect pests of dwellings and stored food. Including white ants, bed bugs, ants, carpet beetles, roaches, grain and flour beetles and moths. Mich.

Strawberry insects. (See also fruit and specific insects.)

Control of the strawberry aphid. Md.

Life history investigations of the strawberry crown borer (Tylocoderma fragaria Riley). Tenn.

Investigations on the strawberry leaf roller. Iowa.

Life history investigations of the strawberry root louse (Aphis forbesi Weed). Tenn.

The strawberry weevil. Life history studies of this insect in the Ozark region. Ark.

Dusting strawberry fields to control the strawberry weevil. Md.

Sugar beet insects. (See also Field crop and specific insects.)

The sugar beet louse. Mont.

Sweet potato insects. (See also Field crop and specific insects.)

Control of sweet potato Scarabee experiments. To try to lessen ravages of the Scarabee among sweet potatoes grown on the Island. Virgin Islands.

The life history, habits, and control of the sweet potato weevil (Cylas formicarius Fab.). Tex.

Termites.

The white ant (Termes flavipes). Okla.

Biology of the termites. N.Y. Cornell.

Termite investigations. Studies of mating and the length of egg stage. Kans.

Termite investigations. Observations on the use of repellent oils, experiments with traps to determine the location of parent colonies and the use of heat as a means of killing the insects within the timbers of a building. N.H.

The classification of South American termites. N.Y. Cornell.

Thrips.

A study of the life history of euthrips and cryptothrips floridensis. Fla.

Camphor thrips. Observations on distribution, life history, food plants, and control. Fla.

Ticks.

A study of the Ixodidae (ticks) of New York State. N.Y. Cornell.

Tick investigation. Spotted fever tick. Mont.

Investigation of cattle tick. To determine life history of cattle tick, including starvation period. P.R.

Tobacco insects. (See also Field crop and specific insects.)

Tobacco flea beetle. To secure a satisfactory method of control for this insect under farm conditions. N.C.

Truck crop and garden insects.

Truck crop insect investigations. Collecting and rearing of larvae of various insects attacking truck crops. Virgin Islands.

Truck crop and garden insects. (Cont.)

Vegetable insect investigations. To adapt present knowledge and to discover better methods of effecting the control of insect species as they become sufficiently prominent to merit attention. N.J.

Important insects affecting garden crops. (1) Harlequin cabbage bug, cabbage aphids, cabbage butterflies, cabbage loopers, flea beetles, onion thrips, cutworms, squash bug, cucumber beetles, and possible new pests; (2) to learn of the natural enemies and other factors influencing the prevalence of the pests; (3) to determine possible adequate and practical means of control. N.Mex.

To determine insect pests of truck crops, corn, cotton, and sugar cane, together with a miscellaneous collection of insects from the Island. Virgin Islands.

Millipedes affecting truck crops and field crops. Penn.

Insect control on market garden crops. (Market Garden Field Station). Mass.

An investigation of the life history, habits, and methods of control of the plant lice (Aphididae) affecting truck crops. Penn.

Control of the corn-ear worm on truck crops. W.Va.

The larger plant bugs on citrus, pecan, and truck crops. Fla.

Turnip insects.

The turnip webworm (Hellula undalis). Life history and methods of control. Ala.

Velvet bean insects. (See also Field crop and specific insects.)

Life history studies of the velvet bean caterpillar (Anticarsia gemmatilis). Fla.

Walnut insects.

The codling moth in walnuts. Calif.

Weevils. (See also insects of specific crops.)

Biology of the genus Bruchus (bean and pea weevil). Life history studies and methods of control. N.C.

Wheat insects. (See also Field crop and specific insects.)

The wheat stem maggot (Meromyza americana), its distribution, food plants, economic importance, life history, habits, natural enemies, and control. S.Dak.

Wheat insects. (Cont.)

Wheat straw worm. Utah.

Investigation and control of injurious insects, mammals, and birds. Mainly on wheat aphids, Harlequin cabbage bug, grasshoppers, and red-tailed horse bot fly. Nebr.

An investigation of the "Hessian-fly-resistant" qualities of different varieties of wheat. Mo.

Wire worms.

The wire worm. Wash.

Study of the life history, methods of control, and relation of soil type to destructive wire worms. Iowa.

Miscellaneous.

Miscellaneous insects. Utah.

Miscellaneous insect studies. Dealing with unusual outbreaks of insects. Ala.

Periodical recurrence of insect pests. Mo.

Insect pest survey. Ind.

Entomological field work. Calif.

Insectary work. Minn.

Insect survey of Montana. Mont.

Insect life of North Carolina. To secure as full information as possible concerning the insect life of the State, the species occurring, distribution, economic relations, biology, and ecology. Preparation of lists, collections, maps, etc. N.C.

Insect collection. Minn.

Collection and preservation of Arizona insects, especially the economic forms. Ariz.

Flower garden insects. Minn.

Studies of insect outbreaks in various localities as they may appear. Mass.

Studies on insect control. Conn. State.

Economic entomology, miscellaneous. (Cont.)

Control of insects in a candy factory. Mass.

Measures for protecting wheat flour substitutes from insects. Minn.

Problems in the embryology of insects (parthenogenesis, paedogenesis, and so forth). N.Y. Cornell.

The parasites and symbionts of insects. Studies of the symbionts of the cockroach, the nosema disease of the honey bee, a coelomic coccidium of tribolium, a cereal-infesting beetle. Minn.

The nutritional requirements of certain insects (Tribolium confusum Duval). Minn.

Investigation as to how sap-sucking insects injure plants. Mo.

Insects injurious to market milk. To determine the importance of the various species concerned, to adapt already known measures and to discover better ones for any species that proves to be seriously injurious. N.J.

Tree tanglefoot investigations. Minn.

Studies of areas with late frosts as shown by insect distribution. Mass.

Determination of limits of pests in Massachusetts to determine what part of the State, if any, need not pay attention to these pests. Mass.

Insect enemies of wild plants which are closely related to the cultivated pomaceo fruits. N.Y. Cornell.

The caddice worms of lake beds. N.Y. Cornell.

Insects affecting the health of animals. Wyo.

Utilization of bloodworms in the removal of milk waste. N.Y. Cornell.

FOODS AND HUMAN NUTRITION.

Food preservation. (See also Storage studies.)

A study of methods of fruit drying, designed to prevent darkening of fruit during process without use of sulphurous acid. Calif.

Effect of sulphuring in fruit tissues and its possible relation to the palatability of the dried product. Calif.

Dehydration of fruits and vegetables. (In cooperation with the U.S. Department of Agriculture). Oreg.

Food preservation. (Cont.)

A study of the dipping of fruits preliminary to drying. Calif.

Variety tests of fruits for drying. Calif.

A survey of the deciduous fruit drying industry of the State. Calif.

Standardization of fruit handling methods for drying purposes. Calif.

An experimental study of equipment for drying and curing of deciduous fruits on a commercial scale. Calif.

Effects of stacking in the process of drying fruit. Calif.

Economical drying of wine and table grapes. Calif.

Use of containers for packing dried prunes. (In cooperation with the U.S. Department of Agriculture). Oreg.

Drying vegetables. Calif.

Canning of Oregon grown apples. (In cooperation with the U.S. Department of Agriculture). Oreg.

Canning dried Italian prunes. (In cooperation with the U.S. Department of Agriculture). Oreg.

Grape sirup as a substitute for sugar in canning. - Calif.

The effect of blanching in the canning of some typical crops of vegetables. Mo.

Investigation concerning methods of preservation of Hawaiian grown food products. Development of practical home and factory methods of canning, preserving, drying and pickling of various Hawaiian grown vegetables, foods and other food crops, especially bananas, avocados, taro edible canna, sweet potatoes, papaya, and pineapples. Hawaii.

Canning investigations in the light of normal and resistant organisms in continuous, fractional, and pressure methods of sterilization. Mass..

Microorganisms of the canning industry. -(1) To determine the organisms more frequently associated with the deterioration of canned products. (2) The thermal death point of these organisms. (3) The relationship existing between the H-ion concentration and the thermal death point in order to determine the most favorable composition of all materials for canning. Iowa.

Heat resisting bacteria of fresh and canned vegetables and their relation to spoilage. Colo.

A study of the thermal death point of Bacillus botulinus, especially in relation to the sterilization of canned vegetables. Calif.

Food preservation. (Cont.)

Improvement of methods of preparing unfermented grape juice. Calif.

Unfermented lemon juice. Calif.

Unfermented orange juice. Calif.

Slaughter and curing of meats. To determine the most profitable way of disposing of hogs. Also the shrinkage in curing. Md.

Proper method of curing meat and to determine amount of shrinkage from different methods of feeding. N.C.

Chilling pork. Ala.

Egg preserving. Mont.

The testing of various methods of preserving eggs. Various egg preservatives and the keeping qualities of different grades of eggs. N.Y. Cornell.

Human nutrition.

Nutrition of infants. Utah.

Studies regarding the nutritive value of milk, its suitability for food for children and animals, conditions which affect its nutritive value, tolerance and related questions. Vt.

The rôle of dairy products in practical nutrition. To determine the effect of feeding albino rats the more common staple human foods, with milk and dairy products, with dairy product substitutes and with no dairy products. Okla.

Milling and baking.

Investigation on the milling quality of wheat. N.Dak.

Wheat milling and baking, to compare the qualities of wheat under test. Mich.

Relation between physical characters, chemical composition and milling and bread-making quality in wheat. Me.

Baking qualities of flour. To determine the function of each of the components of flour and their importance in bread making. Wash.

The strength of wheat flour- colloidal and other factors which may be involved in flour strength. Minn.

Milling and baking. (Cont.)

A study of the total and water-soluble calcium and magnesium content of flours from strong to weak wheats and to determine whether there is any relation between strength of flour and calcium and magnesium content. N.Dak.

The biochemical changes in frosted wheat and their effects on the bread-making quality and market value. Mont.

Wheat and flour investigations. Chemical and milling tests on wheat produced in various agronomic experiments. Kans.

Storage studies.

Changes taking place in corn and corn meal when stored under different conditions. Ky.

Grain storage investigations. Factors influencing the respiration of shelled corn. Minn.

Effect of various storage conditions on the quality and seed value of root crops, with special reference to potatoes. Md.

Fruit storage. Wash.

Physiological aspects of fruit storage. Md.

Storage of fruits at low temperatures for preserving, canning, and soda fountain use. Calif.

Effects of cold storage on dried fruits. Calif.

The cold storage of certain semitropical fruits. Calif.

A demonstration and study of the effect of degree or stage of ripeness of fruit at picking upon its behavior in cold storage. Calif.

Fundamental studies upon metabolic activities of fruits with special reference to their ripening and keeping in cold storage. Calif.

Factors involved in the cold storage of fruits. N.Y. Cornell.

The functions of sulphurous acid in the drying of fruit and in the storage of dried fruits. Calif.

Cold storage for Iowa apples. Iowa.

The keeping qualities of apples in cold storage as affected by the health and vigor of trees. Calif.

Storage studies. (Cont.)

Respiration of apples in relation to their keeping quality. A study of the respiring quotient of apples at common-storage and cold-storage temperatures. N.Y. Cornell.

Storage tests with vegetables. To determine best storage varieties and proper conditions of storage for various crops. N.Dak.

Miscellaneous.

A study of the effects of cereal diet on the capacity of the blood to combine with carbon dioxid. Ohio.

The cooking quality of Colorado potatoes. Colo.

Investigation of sauerkraut production. Wis..

Some factors influencing the demand for retail cuts. N.Y. Cornell.

Rabbit feeding for meat production. Mont.

Raising rabbits on large scale in warrens. Minn.

Belgian hares as an economical food. Observations on cost, feeding, comparative fecundity, comparative gains in weight, diseases, inoculations, fur, tanning, breeding, castration, proportion of sexes in young, runs, hutch building, nest boxes, and marketing. Minn.

FEEDING STUFFS AND ANIMAL NUTRITION.

Feeding stuffs, composition, and nutritive value.

Investigation of the nutritive value of feeds. Studies of (a) the productive values, (b) the proximate composition, and (c) the digestibility of the proximate constituents of feeding stuffs. Tex.

An investigation of the nutritive value of the forage of California stock ranges. Calif.

A determination of the biologic value of the proteins of peanuts, soy beans, and coconut (copra). Okla.

The nutritive value of the proteins of feeding stuffs.. Ill.

Efficiency of various protein mixtures for growth in swine and milk production in dairy cows. Wis.

Composition, constitution, and properties of proteid bodies, especially those of ripe seeds and their relative efficiency in nutrition. Conn. State.

Feeding stuffs, composition, and nutritive value. (Cont.)

Relation of feed consumed to protein and energy retained in the carcass. Mo.

The combination of feeding stuffs to get protein mixtures of high quality.

A study of the relative growth-promoting value of the protein of various feeds, singly and in combination, to establish mixtures of high quality.

N.Y. Cornell.

The constitution, metabolism, and physiological effect of certain phosphorus bodies found in feeding stuffs. N.Y. State.

Determining the digestibility and metabolizable energy in feeds for horses. Mass.

Specific nutrition effects of rations upon swine and sheep. Iowa.

The nutritive deficiencies of barley as a feed for young growing pigs. N.Dak.

Yellow y. white corn for stock feeding. Wis.

The digestibility of corn preparations. Iowa.

Effect of cottonseed meal on cows and heifers in reproduction. To determine the effects of various quantities of cottonseed meal on the reproductive organs of beef and dairy females when fed and handled under various conditions. N.C.

Attempts to improve the nutritive value of grain hulls, especially oat hulls. Mass.

Digestion experiments on prairie grass hay. To determine the digestibility of prairie grass hay at three stages of its growth by use of steers. N.Dak.

Determination of the composition and digestibility of Sudan grass hay, darso, broom corn seed and sunflower silage. Okla.

Nutrients in forage crops. Chemical contents of forage crops, particularly hydrocyanic acid in Sudan grass. Kans.

The composition and digestibility of Sudan grass. Iowa.

Feeding value of sunflowers according to maturity of the plant. Mont.

A biological study of the nutritive value of the velvet bean. With special reference to its amino acid deficiencies and its content of fat soluble vitamin, water soluble vitamin and minerals. Ark.

A study of the dietary value of wild rice. Minn.

The soap weed (Yucca elata) and its feeding and nutritive value for range cows. N.Mex.

Feeding stuffs, composition, and nutritive value. (Cont.)

The nutritive value of dried apple pomace for farm stock. Mass.

Digestion experiments with poultry. To determine the percentage of the various organic nutrients that are digestible in our southern poultry feeds. N.C.

Animal nutrition. (See also Vitamin studies.)

Effect of organic nutrients from single v. mixed plant sources on the growth and reproduction of animals. Wis.

Influence of specific natural foods, especially straws and certain grasses, on reproduction in herbivora. Wis.

Studies of the factors necessary in the maintenance of mammals. Wis.

Attempt to ascertain the use made of food by steers at different ages and in different conditions. Mo.

Studies of factors influencing the normal rate of growth in domestic animals and the permanency of the effects of arrested development. Mo.

Growth data on rats fed synthetic and normal diets. Minn.

Food requirement for growing dairy cattle. Minn., Nebr.

Metabolism in dairy cows. Penn.

Investigation on the maintenance requirements of lean and fat cows. Iowa.

Relative utilization of energy in milk production and in fattening. Penn.
Inst. Anim. Nutr.

Effects upon milk production of varying amounts of the same feed. Penn.
Inst. Anim. Nutr.

Factors influencing the percentage and quantity of the fat in the milk of cows on official test. Including (a) the effect of the temperature on the percentage of fat in milk and on metabolism; (b) feed reduction- 50 per cent for three days; (c) influence of the advance of lactation on the percentage of fat in cow's milk; (d) influence of season of year on the percentage of fat in cow's milk; and (e) the variation of fat in successive fractions of a milking. Mo.

Water requirements of dairy cows on succulent feeds. (a) To determine the amount of water over and above that in the succulent feed that is required by milk-producing cows and the correlation between water consumption and milk production. Iowa.

Animal nutrition. (Cont.)

Study of basal metabolism with cattle and sheep during various stages of development. Including (1) pregnancy or foetal growth; (2) first year's growth after birth; (3) second year's growth after birth. N.H.

Metabolism and catabolism in the chicken. Ky.

Nutrition studies with poultry. (a) Effect of restricted grain rations on growth and reproduction of chickens; (b) causes of leg weakness in baby chicks; (c) effect of restricted rations on the nutritive qualities of egg yolks. Wis.

Nutritive requirements of growing chicks. A study of the essentials of a ration for baby chicks. Nebr.

Deficiencies of feed fed hens as affecting the vitality of chicks. A study of the effect of feeds deficient in one or more essential factor, i.e., ash, protein, fat-soluble A and fat-soluble B vitamins, fed laying hens on the vitality of the chicks. Kans.

The influence of diet upon the development of testes and adrenals in white leg-horn cockerels. Minn.

Factors that influence the composition of body fat. Study of the relation of dietary factors and properties of fats in the animal body. Kans.

A study of the antiscorbutic properties of powdered milk made by the spray process. Minn.

A study of the biochemistry of the blood in polyneuritis. Minn.

A study of the action of physiological stimulants in polyneuritis. Minn.

Protein requirements and metabolism.

Protein requirements for growing cattle. Nebr.

Experiments on the protein requirements for growing cattle. To determine the optimum protein requirement for the growth of Cattle without material fattening. N.Dak.

High and low protein requirements for growing animals. Md.

Influence of nutrition of heifers and the age of breeding upon their subsequent development. Protein requirements for growth. Mo.

Protein requirements for the growth of cattle. S.Dak.

Minimum protein requirement of dry cows. Penn. Inst. Anim. Nutr.

Protein requirements and metabolism. (Cont.)

Determination of the protein and energy requirements for milk production. Va.

The minimum protein requirement for milk production. Penn. Inst. Anim. Nutr.

Protein storage in protoplasmic tissue. Work on the amino acids in the globulins and albumins of beef flesh in fat and very thin cattle. Mo.

The metabolism of the amino acid tryptophane. Minn.

Protein metabolism studies with pigs. Ark.

Vitamin studies. (See also Animal nutrition.)

The relative vitamin requirements of various species of animals and the effect of vitamin deficiency. Iowa.

Relation between vitamins in the food eaten and in the milk produced by a lactating mother. Effects of vitamin-deficient rations on the milk produced by cows. Kans.

The relation of the vitamin content of the feed to the vitamin content of the milk produced. A study of the relative efficiency of milk produced on vitamin-rich and vitamin-poor rations, the efficiency being measured by growth studies with white rats. N.Y. Cornell.

Sources of vitamins in feed; the relation of pigments to animal nutrition; the stability of vitamins and their relation to growth and reproduction. Wis.

The relation of color to the content of fat-soluble vitamin in certain foods. Minn.

Vitamins as aids in the production of growth with pigs. Mass.

Use of yeasts to further our knowledge of growth-promoting substances, or vitamins. Wis.

The requirement of animals at different ages for the water-soluble and the fat-soluble vitamin. Conn. State.

To determine whether the working animal requires more vitamin "B" than the animal at rest. Ill.

Protein, mineral, and vitamin deficiencies of certain practical rations. Ark.

The influence of the diet of the cow upon the vitamin content of cow's milk. Minn.

The metabolism and respiratory exchange of poultry during vitamin starvation. N.Y. State.

Vitamin studies. (Cont.)

Study of fat soluble A content of feeds commonly supplementing corn in feeding hogs. Nebr.

To determine whether pigs require, for normal growth, fat-soluble A vitamin, including the possible difference in nutritive value between yellow and white corn. Ill.

Deficiencies of feed fed hens as affecting the vitality of chicks. A study of the effect of feeds deficient in one or more essential factors, i.e., ash, protein, fat-soluble A and fat-soluble B vitamins, fed laying hens on the vitality of the chicks. Kans.

A study of the various forms of yeast as a source of the water-soluble B vitamins. Minn.

Methods for further concentrating the water-soluble vitamin. Conn. State.

The effect of chemical treatment on the potency of the water-soluble vitamin. Conn. State.

A biological study of the nutritive value of the velvet bean. With special reference to its amino acid deficiencies and its content of fat-soluble vitamin, water-soluble vitamin and minerals. Ark.

The influence of storage upon the vitamin content of butter. Minn.

The effect of heating and other factors on the fat-soluble vitamin contained in butter. Conn. State.

A study of the influence of heat and oxidation upon the antiscorbutic properties of orange juice. Minn.

A study of the influence of heat and oxidation upon the antiscorbutic properties of milk. Minn.

Mineral metabolism.

Importance of mineral constituents of feeding stuffs in the growth and development of farm animals. Wis.

Mineral metabolism of the milch cow. Ohio.

Influence of green feed on the mineral metabolism of lactating animals and on the nutritive and antiscorbutic properties of their milk. Ohio.

Retention of ash ingredients by cows in milk. Penn. Inst. Anim. Nutr.

Mineral metabolism. (Cont.)

The calcium balance of dairy cows. To study the causes of the negative calcium balance so frequently found in the case of dairy cows and if possible to evolve corrective measures. Iowa.

Calcium chlorid as a mineral supplement. Its use in cottonseed meal. Ark.

Calcium requirements of chickens. Wis.

Mineral nutritional studies with poultry. To determine the amount of each mineral element necessary for best results in growth, development, and in egg production. N.C.

Mineral mixtures- examination of proprietary mineral mixtures sold as "tonics" for animals. Ill.

Silage and silage feeding experiments.

Silage investigation. Ark.

Silage making methods. (In cooperation with the Office of Forage Crop Investigations, U.S.D.A.). Oreg.

Chemical investigations of corn silage. Iowa.

A comparison of various varieties of corn for silage purposes. Idaho.

Investigations of the relative values of normal corn silage v. corn stover silage and the relative value of corn in silage v. corn fed as shelled corn. Mich.

Corn stover silage v. normal corn silage for dairy cows. Wis.

Comparison of corn stover silage and ordinary corn silage for milk production. Penn.

A comparison of corn silage with oat and pea silage for milk production. Penn.

Comparison of corn silage and corn-soy bean silage for milk production. Penn.

A comparison of corn silage, artichoke silage, sunflower silage, carrots, and potatoes as feed for milk production. Wash.

Sunflower silage. N.H.

Factors causing poor quality in sunflower silage in the lower Yellowstone Valley. Mont.

Sunflower silage for baby beef. Feeding calves over the winter on different rations, with sunflowers. Mont.

Silage and silage feeding experiments. (Cont.)

The use of sunflowers as a silage crop for dairy cattle feeding. Ill.

A comparison of corn silage with sunflower silage for milk production. Penn.

Feeding trial comparing vetch, corn, and sunflower silage for dairy cows. Oreg.

Chemical and feeding tests of silages made from kafir stover, kafir fodder, cane stover, cane fodder, corn stover, and corn fodder. Kans.

The composition and properties of silage prepared from the grain sorghum. Okla.

New varieties of silage. Palatability tests on the following silages: Wheat, horse beans, mesquite, wild cucumber, dog fennel, Cluna lettuce, Eureka clover, Tangier peas, Hungarian vetch, mustard, tar weed, goat weed, Canada thistle, and more thorough tests with ear corn silage for pigs. Oreg.

Acid formation in corn and in sunflower silage untreated and when treated with Bacterium lactic acid. Oreg.

Microorganisms in silage and their pathological significance. Minn.

Presence of B. botulinus in corn ensilage. Ill.

Methods of securing maximum utilization of silage in beef cattle feeding. Kans.

Pasturage and ensilage production for sheep. The production of sunflower silage. Nev.

ANIMAL HUSBANDRY, GENERAL.

Miscellaneous.

Physiological variations in the temperature of cattle. Minn.

Normal growth and post embryonic differentiation. Me.

Age as a factor in animal breeding. Mo.

Multiple births in cattle. Wis.

Sterility in breeding cattle. Oreg.

Cytological studies of the reproductive cells of cattle and sheep with some similar studies on the mule. Idaho.

Physiology of reproduction in cattle, sterility, heat, length of gestation, etc. Me.

Animal husbandry, general.--Miscellaneous. (Cont.)

Physiology of reproduction in cattle. Including experiments on feeding organ extracts, the study of freemartin heifers, etc. Me.

Organotherapy for the stimulation of ovarian function. Penn.

Effect of cottonseed meal and other highly nitrogenous feeds on breeding stock. Okla.

Effect of arsenic (Fowler's solution) upon the reproductive powers of the individual and its offspring. Ill.

ANIMAL HUSBANDRY, BEEF CATTLE.

General.

Beef cattle investigations. Ark.

Cooperative beef production. Iowa.

The normal growth of dairy and beef cattle as a whole and of certain parts. Me.

The determination of the growth curves of dairy and beef cattle. Me.

The introduction of pure bred beef cattle. Ky.

Beef cattle: Maintaining and improving the herd. (No. Platte Substation) Nebr.

Maintenance of beef breeding cows. Penn.

Maintenance of a pure bred beef breeding herd (at Ft. Lewis). Colo.

Study of maintenance and management problems with beef breeding cows.
(Caldwell Substation) Idaho.

Maintenance and management of Shorthorn beef cattle. (Langdon Substation) N. Dak.

Effect of cottonseed meal on cows and heifers in reproduction. To determine the effects of various quantities of cottonseed meal on the reproductive organs of beef and dairy females when fed and handled under various conditions. N.C.

Study of the relation of one lactation to another in the dairy and beef breeds of cattle. Me.

Sex type as related to functional development and performance in Shorthorn cattle. Kans.

Breeding.

Cattle breeding experiments. Me.

Cattle breeding for beef. To ascertain if good cattle could be reared on native pasture. Alaska.

A study of the influence of age of breeding upon the development of dam and offspring in beef cattle. (Fort Hays Branch Station) Kans.

Experimental analysis of the heredity factors determining milk and meat production in cattle. Wis.

Cross breeding a three-quarter blood Brahma bull on high grade Hereford cows. Tex.

Beef improvement from scrub stock by use of pure bred sires. Ark.

Beef cattle. Building up a grade herd from native stock and pure bred Angus, Hereford, and shorthorn bulls. Miss.

The development of better cattle in the sandy region of southeastern North Dakota. (McLeod Demonstration Farm) N. Dak.

Breeding dual purpose cattle. To test adaptability of milking Shorthorns to that section of the country. Alaska.

To improve the breed of cattle found in Porto Rico. P.R.

Placing of pure bred bulls over the State. Md.

Influence of feed, environment, and breeding on native unimproved cows, and their offspring, as regards development of milk-producing qualities, composition of milk digestive capacity and utilization of feed in dairy and beef production. Iowa.

Yak breeding (subject to procuring breeding stock). To produce a race of cattle that shall be as hardy as the moose. Alaska.

Cooperative breeding records. Records are secured from the leading cattle breeders. Me.

Cost studies, production, finishing, maintenance. (See Rural economics, cost of production.)

Feeding experiments, general. (See also Feeding stuffs and animal nutrition.)

Steer feeding investigations. (Caldwell Substation) Idaho. Ky.

Steer feeding. To find the combination of feeds best suited to the fattening of steers under western conditions where alfalfa is plentiful and corn is high in price. Utah.

Feeding experiments, general. (Cont.)

Alfalfa hay alone as a ration for beef cows. Ariz.

Steer feeding experiment. To compare a standard ration of alfalfa hay, dried beet pulp, and cottonseed cake with corn silage or beet tops added to the ration. (Scottsbluff Substation) Nebr.

Ration experiments with steers. 1. To determine the value of an acre of beet tops. 2. To compare three ways of utilizing tops as a cattle feed (a) pastured in the field; (b) dried and hauled to the lot; (c) fed as beet top silage. 3. To determine the comparative effect of feeding beet tops v. wet pulp with alfalfa in a preliminary test with cattle. 4. To compare wet pulp, beet top silage and corn silage when fed with alfalfa hay. 5. To compare dried molasses beet pulp with wet beet pulp and molasses when fed with cottonseed cake and alfalfa. 6. To find a satisfactory ration for feeding beet top silage. 7. To compare wet pulp and corn silage. 8. To determine an economical utilization of dried molasses beet pulp. Colo.

To compare the relative value of an inferior quality of Johnson grass hay and sorghum silage as a roughage for wintering beef cows when fed in connection with cottonseed meal at the rate of 1 lb. meal per head daily. Ala.

Value of legume hays and straws for production of beef. Wash.

Steer feeding, using corn silage, and corn stover silage or mock silage as roughages, together with concentrates. Va.

The growing and use of silage other than corn in the feeding of beef cattle and sheep. Idaho.

Heavy and light grain rations when fed in connection with corn silage and clover hay for fattening steers. Mo.

Feeding cottonseed products to range steers. Ariz.

Steer-feeding experiments. All lots receiving cottonseed meal with varying amounts of corn and different roughages. Miss.

Velvet beans v. cottonseed meal for fattening steers, when fed in three different forms- dry, soaked, and ground. Ala.

Feeding experiments with velvet bean feed with cows and calves. Ky.

Winter cattle feeding experiment. Mo.

Beef production. Study of winter feeding of beef steers. Mont.

Growing steers without grain. (Fort Hays Branch Station) Kans.

Feeding beef cattle. To determine the most profitable ration for wintering two-year-old steers when they are to be fattened on grass the following summer. W. Va.

Feeding experiments, general. (Cont.)

Wintering beef cows. To determine the best rations and the cost of keeping breeding cows. W.Va.

Wintering beef cattle in western North Carolina. To determine the cost of wintering cattle and the residual effects of the various methods of wintering. N.C.

The maximum utilization of western Kansas roughage in wintering stock cows. (Fort Hays Branch Station) Kans.

Testing home-grown feeds for wintering steers. To learn the relative value of native and alfalfa hay, when fed alone, for wintering yearling steers. Wyo.

Home-grown feeds for wintering steers. To compare sunflower with oat and pea silage, when fed with the same amount of native hay. Wyo.

Winter feeding tests with cattle. Relative feeding value of cane in the silo and in the shock with and without heads removed. (Fort Hays Branch Station) Kans.

Home-grown feeds for wintering steers. To discover the effect of adding silage to a native ration. Wyo.

Winter fattening of beef cattle. To determine the most profitable method of finishing beef cattle on cottonseed meal. N.C.

Rations for fattening steers. Penn.

Fattening steers. To secure data on the feeding of limited grain rations to fattening steers. To study the value of corn and soy bean silage as compared with corn silage and the value of the soy bean in the silage as a substitute for cottonseed meal as a source of protein supply for fattening steers. Ind.

Fattening steers. Alfalfa hay alone, chopped alfalfa hay, alfalfa hay and grain, alfalfa hay and silage, and meadow pasture. (Union Branch Station) Oreg.

Fattening cattle. To ascertain (1) the advisability of adding ensilage to a corn and alfalfa ration; (2) the advisability of adding alfalfa molasses meal to a corn, alfalfa, and ensilage ration; (3) the effect of adding oil meal instead of molasses meal to the same ration; (4) of fattening cattle without corn, feeding oil meal with corn ensilage and alfalfa hay. Nebr.

Home-grown feeds for fattening steers. To learn the effect of replacing half the native hay by sunflower silage or oat and pea silage when cottonseed meal is fed as the sole concentrate. Wyo.

Sunflower silage v. corn silage for fattening steers. Wis.

Home-grown feeds for fattening steers. To study the relative value of sunflower silage and oat and pea silage when both are fed with a basal ration of native hay and cottonseed meal. Wyo.

Feeding experiments, general. (Cont.)

Fattening cattle in winter. Relative value of protein supplements. To determine the relative value of protein supplements where added to a basal ration of corn, corn silage, and alfalfa hay. The quantity of protein supplement to add to this basal ration. Iowa.

Preparation of corn in fattening steers. Penn.

Home-grown feeds for fattening steers. To compare cottenseed meal with old process linseed meal fed in conjunction with native hay for fattening purposes. Wyo.

Fattening steers for market. To determine the feed requirements per pound of gain in fattening two-year-old steers for market when using several rations commonly available in Minnesota; to determine the cost of fattening steers for market when using several rations commonly available in Minnesota during the winter of 1920-21; to determine the efficiency of barley as compared to corn when used as the principal grain in fattening steers for market; to determine the effect upon the rate of gain, economy of gain, selling price, and consequent profit by omitting silage only, linseed meal only, corn only, and silage and linseed meal both from the standard fattening ration of corn, linseed meal, silage, and clover hay. Minn.

Fattening cattle. To ascertain the effect of age upon the rate and economy of gain in cattle. Nebr.

Baby beef growing and fattening. Iowa.

Finishing baby beef. Okla.

Finishing baby beef. To determine the comparative value of sunflower silage and cane silage in the finishing of baby beef. Okla.

Finishing baby beef. To compare sunflower silage, cane silage, darso silage, corn silage, and kafir silage as a roughage in making beef, and sunflower silage and darso silage as roughages for finishing cattle. Okla.

The comparative merits of corn v. the grain sorghums for fattening baby beeves. (Spur) Texas.

Baby beef. To make a study of the production and finish of baby beeves under West Virginia conditions. W. Va.

Growing steer calves. To study the effect of wintering beef-bred steer calves on different rations upon their subsequent gain on pasture. W. Va.

Short feeding cattle. To study the economy of carrying grass cattle beyond the grass fat condition. To determine the gain possible with bunk or rack feeding in the open yard with corn fodder and ensilage, respectively. To learn the feasibility of sheltering such cattle in a straw shed. To study the feeding and feed value of sunflower ensilage and sweet clover ensilage. To determine the effect of a light grain supplement to ensilage rations. N. Dak.

Feeding experiments, general. (Cont.)

Feeds for growing cattle. Including straw and cottonseed cake, alfalfa, silage, alfalfa and silage. (Union Branch Station) Oreg.

To determine the value for cattle feeding of certain locally adapted feeds and pasture crops. Guam.

Limited rations in development of range bulls. Complete records on the growing of pure bred heifers to breeding age. Oreg.

Influence of breeding upon quality of production in meat animals. Ark.

Beef cattle feeding over the State. To observe methods and secure feeding and weight data. Md.

Grazing and range experiments.

Grazing studies. Idaho.

Range grazing of cattle. (Williston Substation) N. Dak.

Range cattle experiment. Calif.

Range cattle nutrition investigations with Chamiso (Atriplex canescens). N. Mex.

Crops and live stock. Cattle grazing: Kudzu and native grasses. Ia.

ANIMAL HUSBANDRY, SHEEP AND GOATS.

General.

Farm sheep management. (Caldwell and Sandpoint Substations). Idaho.

Management of range sheep. Mont.

To determine the practicability of producing sheep profitably under range conditions in western North Carolina. N.C.

Sheep production. To find out the value of sheep to the farming system of this region. (Sandpoint Substation) Idaho.

An economic study of shearing sheep once v. twice a year. Tex.

Salt mixtures for sheep. An attempt to arrange some mixture of salts which, if kept before sheep at all times may take the place of drenching for ridding sheep of worms. N.Y. Cornell.

Breeds and breeding.

- Sheep breeding experiments. Ky., S.Dak.
- Sheep breeding. Production of a hardy breed suited to the coast region. Alaska.
- Sheep breeding. To determine the principles involved in fixing certain characters in sheep. N.H.
- A study of cross-breeding Merino ewes with mutton rams. Penn.
- A study of cross-breeding western range ewes with a pure bred mutton ram. Penn.
- Sheep breeding experiments to build up a flock of high class grades from native and grade ewes, using pure bred Shropshire and Southdown rams. Miss.
- Establishing a breed of sheep for winter lambing and a study of inheritance of characters. Okla.
- Tests with different breeds of sheep. S.C.
- A study of the adaptation of the Corriedale sheep to southwestern Texas. (In cooperation with the Bureau of Animal Industry, U.S.D.A.) Tex.
- A study of the inheritance of characters in sheep breeding. Tex.
- Work in sheep breeding. (Davis) Calif.

Ewes, feeding and maintenance.

- Feeding breeding sheep. W.Va.
- Feeding breeding ewes. Mont.
- Wintering ewes. (Fort Hays Branch Station) Kans.
- Wintering breeding ewes. Okla.
- Winter maintenance of breeding ewes. Colo.
- Wintering pregnant ewes. Iowa.
- Roughages in winter rations for breeding ewes. Ohio.
- Maintenance ration for breeding flocks of mutton and wool sheep. Penn.
- Methods and cost of maintaining breeding ewes and producing lambs. To determine the possibility of producing sheep profitably under Piedmont North Carolina conditions. N.C.

Ewes, feeding and maintenance. (Cont.)

Feeding and grazing investigations with sheep. (Upper Peninsular Substation) Mich.

Comparative rations for wintering breeding ewes. To determine the comparative value of some Oklahoma feeds for wintering breeding ewes; the cost of wintering breeding ewes, the adaptability of this work for Oklahoma conditions; to compare rations containing silage with those containing no silage. Okla.

Pasturage and silage production for sheep. Study of various mixtures of grasses and clovers; of the effect of grazing upon cultivated grasses under controlled conditions; and of the most desirable methods of planting and irrigating Russian sunflowers. Nev.

The growing and use of silage other than corn in the feeding of beef cattle and sheep. Idaho.

Moderate v. heavy silage feeding to pregnant ewes. Wyo.

The value of legume hays and straws for wintering the breeding flock. Wash.

Corn v. oats for breeding ewes. Ohio.

Feeding cottonseed to pregnant ewes. Ariz.

"Sheeping-down" corn. Iowa.

Feeding and finishing range ewes and lambs: (1) Feeding old ewes; (2) pasturing lambs before shipment in the autumn. Nev.

Lambs, feeding, and fattening.

Lamb feeding investigations. (Caldwell Substation) Idaho.

Fattening lambs. (Scottsbluff Substation) Nebr.

Rations for fattening lambs. Colo.

Fattening lambs- comparison of different feeds. (Union Branch Station) Oreg.

Fattening lambs- comparison of feeding in the open and feeding under shelter. (Union Branch Station). Oreg.

Feeding western lambs. Tests of various rations for finishing. Kans.

To determine the cost in feed and pasture of raising spring lambs and the relative values of the different types of management. Oreg.

Lambs, feeding and fattening. (Cont.)

Comparative rations for fattening wether lambs. To determine the length of time cottonseed meal can be fed in large quantities before poisonous effects become apparent. The value of silage when fed with alfalfa hay and ground kafir and a comparison of the feeding value of ground and whole kafir. Okla.

Rations for fattening lambs. To ascertain the advisability (1) of adding ensilage to a corn and alfalfa ration; (2) of feeding molasses meal both with and without ensilage; (3) of feeding oil meal both with and without ensilage. Nebr.

Fall forage for fattening lambs. Mo.

Fattening range lambs in dry lots. Iowa.

A study of the comparative gain and economy of gain made by lambs fattened on the grain sorghums v. corn. Tex.

Value of legume hays and straws for fattening lambs. Wash.

Oat and pea silage v. sunflower silage for fattening lambs. Wyo.

Amount of corn for lambs in rape pasture. Ohio.

Fattening western lambs. To compare limited with full feeding of corn to fattening lambs. To compare clover hay and oat straw as roughages fed with corn, corn silage, and cottonseed meal to fattening lambs, and restricted and liberal feeding of cottonseed meal and linseed meal as supplements to rations composed of corn, corn silage, and dry roughage and to verify the results of previous feeding trials. Ind.

Linseed meal v. cottonseed meal v. gluten feed for fattening lambs. Wis.

Wintering lambs. (Fort Hays Branch Station) Kans.

Lamb production: Methods of producing more and better lambs in Nevada range flocks, including use of better bucks; saving bummer lambs; feeding concentrates to ewe bands in winter on the open range; feeding ewes which lamb under shelter to secure a richer and more abundant milk supply. Nev.

Comparison of types of lambs and systems of production. Ohio.

Comparative method of docking and castrating lambs. Penn.

Wool.

Effect of various factors upon the wool and form of the sheep. Mont.

Alkali and weathering studies with wool. Wyo.

Wool. (Cont.)

Wool scouring and grading. In cooperation with representative sheep raisers. Tex.

Wool investigations. The regain of unwashed wool. Wyo.

A study of the inheritance of wool production. Ohio.

Goats.

Goat breeding. To encourage the breeding of improved milch goats. To ascertain the degree of hardiness possessed by the different crosses. Guam.

Milch goat improvement. To determine the milk-producing capacity of the native goat and the improvement that may be expected by the use of pure bred bucks from a milk breed such as the Toggenburg. Records of the cost of producing milk will also be kept. N.Mex.

Breeding Toggenburg goats (subject to procuring pure bred stock). To see if goats will thrive and adapt themselves to Alaska conditions. Alaska.

A study of the improvement of type in the Angora goat. Tex.

Goat feeding tests. To determine the most desirable feeds and feeding methods in connection with the production of pure bred and grade milch goats. Guam.

ANIMAL HUSBANDRY, SWINE.

General.

Methods of growing pigs. Penn.

Hog raising: (1) To show how best to handle hogs. (2) To breed pure bred stock for sale as farm demonstration work. Alaska.

To determine the condition and profits in producing pork by the suburban residents in the backyard. Md.

Work with swine at Highmoor. Me.

Breeds and types, breeding.

Hog improvement from scrubs by use of pure bred sires. Ark.

Hogs: Maintaining and improving the herd by the use of good sires. (North Platte Substation) Nebr.

Breeds and types, breeding. (Cont.)

Experiments in the "upgrading" and better management of the types of hog found in the Mountain districts of Kentucky. Ky.

Swine breeding experiments. To note the inadvisability of raising breeding stock from gilts. Md.

Most desirable age to breed gilts. Penn.

Swine breeding. To encourage the breeding of an improved type of hog; and to determine the degree of hardiness possessed by the progeny of pure bred Berkshire hogs under Guam conditions and to evolve a strain of hogs for Guam resulting from different crosses of Berkshires on native hogs for the purpose of attaining maximum hardiness, size, feeding qualities, etc. Guam.

Type test with swine. Iowa.

A study of swine types covering growth, feed requirements, visceral development, and carcass production, determining differences existing and causes therefor. Iowa.

A study of the effects of the periods of gestation and lactation upon the growth and composition of swine. Mo.

Heredity studies with swine. Iowa.

Brood sows, maintenance and management.

Maintaining brood sows. Penn.

Maintenance of brood sows. To determine the economy of forages and leguminous hays in ration for breeding swine and to compare the efficiency when fed to brood sows. (a) Of different leguminous hays. Mo.

Maintenance of brood sows. Cost and methods of feeding. Mont.

Two methods of raising and maintaining brood sows. Ariz.

Wintering brood sows: A study of the influence of feed, exercise, and degree of fatness of sows during pregnancy- also the residual effects of the treatment of the sows during pregnancy upon the growth and development of their litters from farrowing till weaning age. Ind.

Comparison of rations, methods of shelter, and methods of management for wintering brood sows. Wis.

Wintering pregnant sows. Iowa.

The value of varying percentages of alfalfa hay in brood sow rations. Minn.

Brood sows, maintenance and management. (Cont.)

Influence of velvet beans alone on secretion of milk in brood sows and on condition of litters. Ala.

Cost of production. (See Rural economics, cost of production.)

Feeding, general. (See also Animal nutrition.)

Swine feeding. S.Dak.

Swine feeding investigations. Minn.

Ration experiments with swine. Ark.

Experiments in feeding pigs. Mass.

Growing pigs to weaning age: To study the methods of feeding pigs from the time they begin to eat solid food until they are ready to be weaned. Ind.

Rations for pigs at weaning time. Mo.

A comparison of home-grown and purchased feedstuffs for economical pork production. Fla.

Suitable rations for fattening hogs. To compare corn and Indiana grown barley as fattening feeds for hogs; to study methods of feeding barley with tankage and with corn and tankage, the effects of high fiber content in a mixed fattening ration, the effects of high fiber content on the appetite of the hog and to demonstrate the feeding principle of suitability of feeds for specific purposes. Ind.

Growing and fattening spring pigs for market. To compare full feeding of grain to hogs in pasture for early fall marketing and growing shoats on pasture followed by full feeding in dry lot, also to compare some principal forage crops for growing shoats and fattening hogs. Ind.

Rations for fattening hogs. Various rations in comparison with corn and tankage in self-feeders. Nebr.

Swine investigations. Fattening hogs for show purposes. (Union Branch Station) Oreg.

Relation of better preparation of feeding stuffs and different methods of feeding upon the rate and economy of gain put on by fattening swine. Mo.

Economic utilization of crops for the production of pork. Wash.

Swine feeding tests. To determine the feeding value for swine of certain feeds and pasture crops that may be produced locally. Guam.

Feeding, general. (Cont.)

To determine the most profitable way of utilizing the corn crop as a feed for swine. Md.

Growing and fattening hogs for market. To determine the value of soy beans as a supplement to corn. Ill.

Sunflower seed as a feed for fattening swine. Mo.

The value of alfalfa as a supplement to a diet of corn and tankage and kafir and tankage, respectively, when fed continuously to three generations of swine. Kans.

To determine the pounds of live pork per 100 lbs. picked runner peanuts alone, and with various supplements. Ala.

To determine the value of some uncommon by-products feeds as a feed for swine. Md.

Tests of various rations for finishing. Kans.

Fiber in rations for fattening swine. Ohio.

Growing pigs in dry lot, in combinations with self-feeder, as compared with dry lot in combination with a full grain ration (hand fed). (West Central Substation) Minn.

Dry lot rations for swine. Iowa.

A comparison of hand feeding and self feeding swine in dry lot. Ohio.

Cane molasses for hogs. To determine the extent to which the palatability of a ration is increased by the use of molasses in connection with shorts or barley. Oreg.

Beet molasses as feed for young hogs. Cooperative work with packing houses to determine the value of tankage as a winter feed for brood sows and young pigs. Utah.

Residual effect of forage crops for swine. Mo.

Forage crops for hogs: Hogging off.

Forage crops for hogs. Iowa, W.Va.

Forage crops for growing and fattening swine. Ark.

Comparison of forage crops for swine and of concentrates and supplements to feed on forage. Wis.

Forage crops for hogs: Hogging off. (Cont.)

Influence of forage crop in the ration on yield of pork. Del.

Hog pasture experiment. (Lightfoot Station). Va.

Swine investigations. Value of different pasture crops for growing pigs. (Union Branch Station) Oreg.

Forage crop experiment with swine on different kinds of pasture and fed varying amounts of grain. Mont.

Hog pasture experiments to find a suitable sequence of grazing crops for hogs and the necessary concentrates to produce fat pork by the end of the grazing season. Va.

Permanent pasture: To determine the value of one acre of permanent pasture for pigs in terms of feeds saved. N.C.

Pasturing crops for pigs. Comparison of all available forage crops for the economic pasturing of pigs. To determine the ages at which pigs can make most use of green forage crops. A study of the quantity of grain to supply to make the most economic use of green forage crops. N.Dak.

Methods of feeding swine on pasture. Mont.

Alfalfa pasture test with hogs. (Garden City Branch Station) Kans.

Growing pigs upon alfalfa pasture with self-feeder as compared with alfalfa pasture in combination with a full grain ration (hand fed) as compared with growing pigs on alfalfa pasture in combinations with a reduced grain ration (hand fed). (West Central Substation) Minn.

Growing pigs upon alfalfa pasture in combination with a full grain ration (hand fed) as compared with a full grain ration (hand fed) in combination with dry lot. (West Central Substation) Minn.

Growing pigs upon alfalfa pasture in combination with self-feeder as compared with dry lot in combinations with self-feeder. (West Central Substation) Minn.

Bur clover pastures for pigs. Value of bur clover for pigs in terms of grain saved. N.C.

Comparative tests of rape, crimson clover, bur clover, alfalfa, rye, and barley as winter grazing crops for hogs. S.C.

Hog grazing, including corn and soy beans, or cowpeas, sweet potatoes, soy beans, and oats. La.

Hog grazing tests with peanuts, soy beans, small grains, alfalfa, and clovers. To determine the amount of grazing from each and their effect on the quality of the pork. Miss.

Forage crops for hogs: Hogging off. (Cont.)

Hog grazing experiments with corn and soy beans. (North Louisiana Experiment Station) La.

Hogging-off crops v. dry lot feeding. To compare the practice of hogging-off crops in field to feeding in dry lot. To compare the practice of growing protein supplements in the field with corn and the practice of adding protein supplements to corn in the field at the time of hogging-off and to compare supplements to be used with corn which is hogged-off. Ind.

Hogging-off corn. To determine the best size and age of pigs for hogging-off corn and the economy of fattening hogs by this method, the best variety of corn for the purpose. To learn what proportion of the seasons will sufficiently mature corn for it to be available for hogging-off. N.Dak.

Hogging-off field peas. Idaho.

Hogging-off field peas and corn with Duroc hogs. (Edgeley Substation) N.Dak.

Experiments in the hogging down of soy beans, cowpeas and corn, and comparing velvet bean meal, tankage and soy bean meal as supplements to corn meal in feeding hogs. Ky.

Garbage for hogs.

Garbage for fattening pigs. Including garbage alone and with grain and also slaughter tests. Oreg.

Comparison of feeds for fattening hogs by using garbage, corn, kafir, barley, and oats for fattening. Okla.

To determine if cooked citrus fruit rinds have any poisonous or toxic effects on hogs. Md.

Mineral supplements for hogs.

Mineral supplements for brood sows. Wis.

Salt for pigs. To determine if seven to eight ounces of salt will kill pigs of different sizes and how much salt will be eaten by different sized pigs. N.C.

Protein supplements for hogs. (For peanuts see Soft pork.)

Protein supplements for swine. To determine the relative value of various protein supplements. Ark.

Comparative value of protein supplements in pork production. Calif.

Protein supplements for hogs. (Cont.)

Protein supplements for swine. The place of protein supplements of animal origin in the feeding of swine in New York State. N.Y. Cornell.

A comparison of various protein supplements for fattening pigs on concentrates and forage crops. Penn.

Protein supplements for pork production. Wash.

Efficiency of various protein mixtures for growth in swine and milk production in dairy cows. Wis.

Comparison of various grains for fattening hogs. Okla.

Wet v. dry grain mixture for growing pigs. Wyo.

Determination of the relative efficiency of Michigan grown grains and combinations thereof for pork production. Mich.

Comparison of feeds for fattening hogs by using corn, kafir, barley, oats, and garbage for fattening. Okla.

Feeding hogs- comparing darso, kafir, and corn in fattening hogs by use of the self-feeder. Okla.

Comparison of methods of preparation of barley for hog feed. To determine the best method of preparing barley by comparing free choice whole and ground, self-fed ground and mixed with tankage and hand-fed ground, whole, and soaked. Okla.

The nutritive deficiencies of barley as a feed for young growing pigs. N.Dak.

Barley v. corn for fattening swine. Mo.

Barley v. corn for swine and comparison of methods of preparing barley. Wis.

Different protein supplements with barley and corn for fattening hogs. Idaho.

Comparison of protein supplements to barley and corn for swine: Skim milk, whey, tankage, linseed meal, and wheat middlings when fed separately and in combination. Wis.

Barley and wheat for pigs when supplemented with tankage. Mont.

The value of buckwheat middlings for feeding growing shotes on pasture. An attempt to see how nearly buckwheat middlings may be safely substituted for wheat middlings in feeding growing shotes on pasture. N.Y. Cornell.

Coconut meal as a protein supplement for fattening swine in dry lot. Calif.

Protein supplements for hogs. (Cont.)

Coconut meal as a protein supplement. To determine the value of coconut meal as a protein supplement in fattening hogs and particularly to test its palatability. Oreg.

Comparison of corn, kafir, darso, barley, and cane for fattening hogs. Okla.

A comparison of rations containing corn, wheat middlings, buckwheat middlings, tankage 60 per cent protein and tankage 50 per cent protein and 10 per cent bone meal for swine. Penn.

Supplements to corn for feeding swine in dry lot. Ohio.

Supplements to corn for fattening hogs: To compare the feeding value of some of the most important protein supplements. Ind.

Study of fat-soluble A content of feeds commonly supplementing corn in feeding hogs. Nebr.

A study and comparison of the feeding value of cottonseed meal, cottonseed, and tankage, and supplements to milo chops in a fattening ration for hogs. Tex.

Hominy feed v. corn for fattening swine on forage. Mo.

A study of the results of feeding rations composed of milo chops; of milo chops supplemented with tankage, and with milo chops supplemented with tankage and pasture, when fed to growing pigs. Tex.

Protein supplements for kafir for hogs. The relative value of tankage, peanut meal, cottonseed meal, and alfalfa hay, as supplements for kafir grain when fed to 100-lb. hogs. Okla.

Legume hays v. tankage as proteid supplements for brood sows. Relative value of various legume hays in cheapening the winter ration. Influence of the use of these on the size and vigor of pigs produced. Ark.

Oats for fattening swine. Ohio.

A study of rice and rice by-products in swine metabolism. Calif.

Grain sorghums v. corn for fattening swine. Ark.

Soy beans and peanuts for fattening hogs. To determine the rate of gain from each feed and to study the effects of these feeds upon the carcasses of the hogs. N.C.

Comparative test of the value of velvet bean meal, peanut meal, and cottonseed meal as protein feeds for hogs. S.C.

Swine feeding experiments. To determine the possibility of using fish meal as a source of protein in feeding swine. Md.

Protein supplements for hogs. (Cont.)

Fish meal v. tankage for pigs. Oreg.

Fish meal v. tankage as a supplement to corn in rations for fattening swine. Mo.

To compare value of fish meal with tankage as a protein carrier for fattening hogs. N.C.

Comparative tests of fish meal and tankage in pork production. S.C.

Vegetable proteins and digester tankage in rations for growing pigs. (Union Branch Station) Oreg.

Supplemental feeds for swine. Skim milk, tankage, roots, alfalfa, etc. Mont.

Semi-solid buttermilk v. tankage as a protein supplement in rations for fattening swine. Mo.

Self-feeders.

Self-feeders for fattening swine. To determine their economy and advisability. Ark.

Comparison of hand-feeding and self-feeding methods of growing pigs. Kans.

A comparison of the self-feeder v. hand feeding for young pigs on forage crops. Penn.

Feeding hogs: Comparing darso, kafir, and corn in fattening hogs by use of the self-feeder. Okla.

Soft Pork, in connection with feeding peanuts, etc.

A study of the factors influencing production of soft pork. S.C.

Quality of pork from different Arkansas feeds as regards hardness or softness of meat. Ark.

Effect of various feeds upon the quality of the pork product. A comparison of various rations with peanuts. Okla.

Effect of some southern feeds on the properties of lard. Ala.

To compare on a basis of gains and melting point of fat, corn with tankage, and a mixture of corn plus tankage, all used as feeds supplementary to peanuts. (Swine). Ala.

Soft pork, in connection with feeding peanuts, etc. (Cont.)

The use of peanut meal for fattening hogs. Experiments to determine how much peanut meal could be fed to hogs and still produce a hard pork. Fla.

The relation of peanuts and peanut meal when fed to hogs to softness and other changes in the pork. Ga.

Soft pork. Grazing on peanuts and soy beans and finishing with corn and tankage. (In cooperation with the Bureau of Animal Industry, U.S.D.A.). Miss.

Peanuts for fattening hogs. To determine length of time necessary to make the hogs soft, then the length of time necessary to make the hogs hard, by killing two pigs out of each lot at intervals of two weeks. N.C.

Soy beans and peanuts for fattening hogs. To determine the rate of gain from each feed and to study the effects of these feeds upon the carcasses of the hogs. N.C.

Hardening the bodies of hogs after peanuts. Length of time to harden carcass after eight weeks grazing period on peanuts, by killing 3 hogs at four week intervals after the grazing period is finished. N.C.

ANIMAL HUSBANDRY, HORSES AND MULES.

Breeding.

Horse breeding. To encourage the breeding of improved horses, and to determine the degree of hardiness possessed by progeny of pure bred Morgan horses under Guam conditions, and to evolve a strain of horses for Guam resulting from different crosses of Morgans on native mares for the purpose of attaining maximum hardiness, size, feeding qualities, etc. Guam.

Breeding experiments with horses and mules. S.C.

Mule breeding. Miss.

Cost of production. (See Rural economics, cost of production.)

Feeding.

Determining the digestibility and metabolizable energy in feeds for horses. Mass.

Horse feeding tests. To determine the value for horse feeding of certain foods and pasture crops which may be produced locally. Guam.

Maximum hay and minimum grain for the work horse. N.Y. Cornell.

Feeding. (Cont.)

Grain for work horses. N.Y. Cornell.

Barley v. oats for work horses. Wis.

Corn and cob meal, linseed meal, and oat straw as a wintering ration for farm work horses. Mo.

Oat straw as winter roughness for farm work horses, fed in conjunction with a grain ration of 2 parts corn, 2 parts oats, 1 part bran and linseed meal to balance the ration. Mo.

Corn silage as a part ration for horses of various ages. Mo.

Silage for raising colts. N.Y. Cornell.

Growing draft colts. Mo.

ANIMAL HUSBANDRY, POULTRY.

Breeding.

Poultry breeding. Utah.

The breeding of pure bred poultry. Ky.

Breeding experiments with White Leghorns- a study of fecundity. Conn. Storrs.

Study of higher fecundity in hens by breeding. Mich.

Amount, distribution, and inheritance of fecundity in domestic fowl. N.J.

Study of Mendelian inheritance and linkage of egg production and feather color. Me.

Inbreeding in poultry. Kans.

Inbreeding in poultry. To test the effect of inbreeding on the quality of the stock. Me.

Effect of close inbreeding on egg production and on fertility and hatchability of eggs. Oreg.

Studies on inbreeding with Rhode Island Red fowls. Wis.

Effect of inbreeding poultry. N.Y. Cornell.

Poultry breeding- continued close breeding of fowls. Conn. Storrs.

Breeding. (Cont.)

Breeding experiments with poultry, to study the effects of selection and in-breeding. N.Y. State.

Breed improvements. Oreg.

Improvement of mongrel flocks through selected standardbred cockerels. A study of the feasibility of improving mongrel flocks through the use of standardbred cockerels of White Wyandotte, Rhode Island Red, and White Orpington Varieties. Kans.

Developing a high-producing flock from common hens. Ark.

Flock maintenance and improvement. To develop an increased egg producing strain of fowls while maintaining them in farm flock condition. N.Dak.

Chicken breeding. To encourage the breeding of improved breeds and varieties of chickens; the determination of the adaptability of various breeds and the development of certain desirable crosses. Guam.

Breeding single comb White Leghorns and Barred Plymouth Rocks for egg production. To improve egg production by breeding and to observe physical characteristics which indicate high egg production. Ind.

Breeding studies with single comb White Leghorns, Rhode Island Reds, and Barred Plymouth Rocks, and facts or physical signs which indicate egg production. To determine the influence of the male as transmitting the factor of high egg production, influence of the female as transmitting powers of high egg production: Physical signs of high egg production. N.C.

Breeding for egg production. Idaho, Iowa.

Breeding for egg production.--Effect of breeding and selection in increasing egg production through the year. Mont.

Inheritance of high egg production. Oreg.

Inheritance in egg production. Data on maturity as indicating productive ability, inheritance of size and color of eggs, and similar characters. Nebr.

Reciprocally crossing Barred Plymouth Rocks with other breeds. Experiments bearing on the inheritance of linked characters. Me.

External characters as indicative of a fowl's breeding ability. N.J.

Age as a factor in poultry breeding. Influence of time of hatching on future egg production. Effect of early laying on egg production. Length of period required to reach maturity as an indication of future egg production. Mo.

Selection of poultry for vigor. W.Va.

Breeding. (Cont.)

The best layers in the egg laying contests to be used as breeding stock for the development of better laying strains of standard varieties of poultry. Nebr.

Comparison of the four leading breeds of poultry as to their utility, quality, and egg production. Miss.

Chicks, brooding and feeding.

Experiment in chick feeding. Mo.

Study of compounding feeds without the use of meat scraps for young chicks. Mich.

Soy bean meal v. beef scraps and skim milk for the growing chicks. Ky.

Raising chicks in confinement. To determine a ration and method of feeding and care of young chicks which will permit the normal growth in confinement without the heavy mortality usually experienced at the age of 6 to 12 weeks. Ind.

Study of the relation of chick vitality to its lime-phosphorus ratio at time of hatching. Mont.

Calcium requirements of chickens. Wis.

Deficiencies of feed fed hens as affecting the vitality of chicks. A study of the effect of feeds deficient in one or more essential factors, i.e., ash, protein, fat-soluble A and fat-soluble B vitamins, fed laying hens on the vitality of the chicks. Kans.

Brooding tests. To determine the cost and advantages of brooding by different artificial and the natural systems. N.Mex.

Poultry management. Tests of the more successful of the coal stove brooders with the view of determining the most efficient. To secure data on the most successful management to be followed for the long continuation of a poultry plant. Me.

Rate of growth of chicks under normal conditions. Mo.

Cost of production. (See Rural economics, cost of production.)

Egg laying contests, exhibitions, and routine records.

Improvement of poultry through the establishment of egg laying contests and breed testing stations. N.J.

Egg laying contests, exhibitions, and routine records. (Cont.)

Improvement of poultry through the organization, aid, and superintendence of poultry exhibits including provision for instruction in poultry raising, and to offer premiums for excellence in quality of birds exhibited at such exhibitions. N.J.

Poultry laying contest with pens of four hens from various breeders and farmers in the State. Mich.

Arkansas State egg laying contest. Ark.

North Dakota egg laying contest. To encourage the breeding of better laying strains of poultry and find the cost of egg production in North Dakota. N.Dak.

Routine work with poultry. Exact and detailed records of all matters concerning poultry, including autopsies of all birds dying, etc. Me.

Egg laying, physiology and correlations. (See also Genetics.)

Physiology of reproduction in poultry. The mechanism of the internal secretions and their relation to egg production and to secondary sexual characters. Mechanism of anaphylactic shock and castration and transplantation experiments. Me.

Breeding as affecting egg production. Tex.

A study of the influence of season of hatching on egg production in White Leghorns. N.Y. Cornell.

Egg production of early y. late-hatched pullets. Ohio.

Early laying maturity in relation to good laying. Oreg.

Influence of range of egg laying on fertility, hatchability and egg laying of offspring. Okla.

First year's production as correlated to subsequent years. Oreg.

Date of hatching to laying of first eggs. The relationship between the date chicks are hatched and the time they lay their first eggs, in females of the various breeds, the rate of development in males according to time of hatching, and the relationship between the date first egg is laid and subsequent winter egg production. Okla.

Influence of climatic conditions on egg production. To determine if single comb White Leghorns of same breeding and raising- one half at Winnipeg and the other half at Raleigh, both flocks receiving the same feed in kinds and amounts and normal daylight as feeding hours, will show the same egg production curve. Do birds at a southern latitude lay earlier and finish their year's laying earlier? N.C.

Egg laying, physiology, and correlations. (Cont.)

External characteristics of the hen as indicating laying capacity. Oreg.

The relation of external characters to egg production. N.Y. Cornell.

Study of type. Relation between high egg production and type or conformation. Oreg.

Study of the mineral contents of eggs with an intent to increase the iron content of the yolk. Mich.

Inheritance of egg production in heavy breeds. N.Y. Cornell.

Inheritance of egg production in leghorns. N.Y. Cornell.

Variation in and inheritance of egg shell color. N.J.

A study of the influence of selection on egg production. Ala.

Increasing weight of brown and white eggs. Okla.

Value of heating water for winter egg production. Okla.

The use of rest eggs for laying stocks. Iowa.

Feeding and fattening, general. (See also Animal nutrition.)

Poultry feeding. To devise a simple ration for feeding poultry. Md.

Methods of feeding laying hens. Ohio.

Feeding hens for breeding purposes. N.Y. Cornell.

Methods of feeding pullets for egg production. N.Y. Cornell.

Methods of feeding pullets for egg production under artificial illumination. N.Y. Cornell.

Experiments to determine the best methods and rations for finishing market poultry. Iowa.

Feeding market poultry in transit. Iowa.

Digestion experiments with poultry. To determine the percentage of the various organic nutrients that are digestible in our southern poultry feeds. N.C.

To determine the most desirable feeds and feeding methods in connection with chicken production under local conditions. Guam.

Feeding and fattening, general. (Cont.)

Feeding experiments with poultry relating to the importance of coarser vegetable foods and the utilization of waste foods. N.Y. State.

Green food for egg production. W.Va.

A study of several feeds, to determine the relative efficiency and economy in egg production. Ala.

Comparative values of wet and dry mash for winter egg production. To compare the relative value of warm wet mashes and dry mashes for winter egg production and the effect of the above mashes upon the weight of the eggs. Okla.

The influence of quality and quantity of rations upon egg production. N.J.

Simple and variety rations for laying hens. Ohio.

A study of some of the factors influencing the palatability of poultry feeds, especially alfalfa products. Nebr.

Poultry feed palatability. Kans.

Feeding demonstrations. To obtain records of egg production, feed consumed, labor costs, and other items of expense and income on a large flock kept under farm conditions and fed and managed by Purdue methods. Ind.

Growth curve experiments. To obtain more accurate knowledge of food requirements of hens for growth and egg production by study of effect of feeding one kind of grain with the addition of chemical preparations. Conn. Storrs.

Illumination of hen houses.

Lighting poultry houses. Utah.

Electric light and egg production. Influence of artificial illumination on egg production. N.Y. Cornell.

The use of artificial lights as a means of increasing egg production. Iowa.

To determine the influence of artificial illumination upon egg production. N.J.

Artificial light in egg production, using lights, morning and night in the laying house. Mont.

Electric lighting of poultry houses. To find the influence of electric lights in a poultry house between 8 and 9 p.m. on two-year-old Leghorn hens. Ind.

Effect of artificial illumination on breeders. N.Y. Cornell.

Illumination of hen houses. (Cont.)

Effect of artificial illumination on growth and maturity. N.Y. Cornell.

A study of the methods of poultry house lighting. N.Y. Cornell.

The amount of light required and the method of distribution in the artificial lighting of henhouses. N.Y. Cornell.

Incubation, fertility, and hatching of eggs.

Brooding experiments. W.Va.

Incubation studies. Utah.

Artificial incubation. To determine the effects of moisture, turning of eggs, cooling of eggs, position of eggs in tray, ventilation, steaming of eggs at pipping time, sprinkling of eggs at pipping time, freak eggs. Okla.

Incubation temperatures. To determine results of subjecting eggs during incubation to varying degrees of temperature and its relation to optimum temperature for artificial incubation of hen's eggs: Difference in results secured from White Leghorn and White Plymouth Rock eggs: Variation of optimum temperatures in different types of incubators, loss of moisture as a factor of difference in temperature. Ind.

The influence of subnormal temperatures upon the growth of the chick embryo during the process of incubation. Conn. Storrs.

Study of the evaporation of the moisture content during incubation. Mich.

Egg hatching investigations. To determine the length of time eggs may be kept for purpose of incubation. To study the effects of different methods of handling eggs previous to incubation. Md.

Studies of individuality of the hen influencing hatchability of the eggs. Mich.

The amount and causes of embryo mortality. To determine the economic loss due to the prevalence of this mortality. N.J.

Incubation studies. To determine the causes contributing to the mortality of artificially incubated eggs. Kans.

Study of hereditary factors as possible causes of inshell deaths and consequent low hatchability of eggs and effects of single factors and their transmission in inheritance. Conn. Storrs.

Incubation, fertility, and hatching of eggs. (Cont.)

Influence of management and feeding on vigor in germ of hen's eggs. (1) Corn v. wheat rations as affecting the vigor of chick embryos. (2) A study of factors (confinement and the use of green feed) affecting the fertility, hatchability, and size of hen's egg. (3) The influence of an abundant supply of protein and ash constituents of animal origin in a ration for little chickens as affecting their mature weight and the number and average size of the eggs which they lay. W.Va.

Studies of factors influencing length of time necessary for male bird to be in pen to secure highest fertility point. Mich.

Management, housing.

Poultry maintenance and management. (North Platte Substation) Nebr.

Poultry flock and farm management studies. N.J.

Housing pure bred poultry. Ky.

To devise and improve poultry equipment and methods used in handling poultry. Md.

Marketing and distribution.

Market experiments: (a) Fleshing broilers.- To determine best feeds and methods for best results using southern poultry feeds. (b) Shipping shrinkage experiments with broilers.-To determine if means can be devised to curtail the shrinkage due to shipping. (c) Egg shipping experiments.-To get shipping experience and learn facts as to best methods. N.C.

Methods of preparing, packing, and shipping poultry and poultry products: Prevailing prices and the cause of price variations in the greater markets. N.J.

A study to determine the best age at which to market poultry. Ala.

The testing of various methods of egg packages, through uniform shipments and laboratory tests, to ascertain the methods of packing that will cause the least breakage at a minimum cost. N.Y. Cornell.

Protein supplements for poultry.

Value of protein for laying hens. A comparison of cottonseed meal, beef scraps, and milk as egg producers. Miss.

To determine the comparative value of certain protein feeds in a ration for laying hens. Idaho.

Animal v. vegetable protein in a laying ration. Ky.

Protein supplements for poultry.

Vegetable and animal sources of proteins for laying hens. Ark.

A study of several feeds-- beef scrap, skim milk, peanut meal, and velvet bean meal as a source of part of the protein in the ration to determine the relative efficiency of each feed as influencing the egg yield and cost of egg production. Ala.

The value of sour milk, beef scrap, cottonseed meal, gluten meal and oil meal in rations for egg production. To obtain the feeding values of meat scrap, sour milk, gluten meal, cottonseed and oil meal when fed to laying hens. Mo.

To compare the value of protein in meat scrap, cottonseed meal, peanut meal, high grade tankage and buttermilk as a suitable source for egg production and the effects of each on the breeding qualities of poultry. Okla.

Sources of animal protein [for poultry]. N.Y. Cornell.

Use of animal food in the mash for laying hens. Iowa.

Effects of animal proteins on winter egg production. To determine the per cent of meat scrap which when fed in a dry mash with other feeds will give the most economical egg production during the winter months, the influence of feeding various per cents of meat scraps upon the weight of the fowl, weight of egg and the amount of feed consumed, a comparison of the value of meat scraps and tankage as a winter egg producer and to compare the mortality of the various pens. Okla.

Practical poultry feeding studies. Animal proteins (dried buttermilk, meat scrap, dried blood, and digester tankage) v. vegetable proteins (soy bean meal and peanut meal): Dry lot v. range: Influence of velvet beans on growth and egg production and the same for cottonseed meal: Influence of lights on egg production: Influence of straw lofts on egg production. N.C.

The value of meat scrap in a laying ration. To find the proper proportion of animal protein in the form of meat scrap in a laying ration for White Plymouth Rocks, and its bearing on the per cent of meat scrap variability in quantity of meat scrap, which can be fed without influencing egg production, feeding value of meat scrap: Results of too much meat scrap on egg production, health, fertility, hatchability, etc. Ind.

Comparison of tankage and meat scrap for laying hens. Ohio.

To determine the value of certain grain rations for laying hens. Idaho.

The use of corn in rations for laying hens and growing stock. Iowa.

"White" v. "yellow" rations for poultry. Wis.

Poultry feeding. A comparison of corn silage, buttermilk, grain, and meat scraps, with commercial feeds. Utah.

Protein supplements for poultry. (Cont.)

Feeding value of soy bean oil meal for Barred Plymouth Rock pullets. To find if soy bean oil meal can be substituted for tankage in a ration for Barred Plymouth Rock pullets. Its influence on fertility, hatching power, egg production, health, and cost. Ind.

Feeding value of soy bean oil meal in a laying ration for White Leghorn pullets. To find if soy bean oil meal can be substituted for tankage in a ration for White Leghorn pullets. Its influence on fertility, hatching power, egg production, health, and cost. Ind.

A comparison of the feeding value of kafir, cane, milo, and corn. Kans.

To determine the comparative value in a ration, of dry oats, soaked oats, and sprouted oats, for poultry. Idaho.

Comparison of cottonseed meal with animal protein as a feed supplement for laying hens. Tex.

Miscellaneous.

Economics of the poultry industry. Kans.

Meat qualities and egg production. Oreg.

Broodiness in poultry. To determine the inheritance of broodiness and its possible connection with the physiology of the reproductive organs and the external stimuli. Mass.

Nutrition studies with poultry. (a) Effect of restricted grain rations on growth and reproduction of chickens; (b) causes of leg weakness in baby chicks; (c) effect of restricted rations on the nutritive qualities of egg yolks. Wis.

Temperature studies on poultry. N.Y. Cornell.

Poultry experiments: Histological study of the tissues to determine, if possible, the cellular structure of the elements making internal secretions. Me.

Poultry experiments: Analysis of what the internal secretions may be. Me.

The influence of different rations upon the composition of fat in poultry. Iowa.

Flock segregation. N.Y. Cornell.

Capon production. Iowa.

To distribute free of cost eggs of standard stock to farmers who have neither or who are not in position to obtain them. N.Mex.

Poultry, miscellaneous. (Cont.)

Distribution of pure bred poultry stock. W.Va.

To determine how best to present educational poultry work for country people. N.C.

DAIRY CATTLE.

General.

Economic studies of dairy farming. N.Y. Cornell.

Dairy farm management. To demonstrate the relationship of dairy farming to the improvement of the soil. (Caldwell Substation) Idaho.

To determine the best combination of crops to be grown for a dairy herd. (Caldwell Substation) Idaho.

Maintenance and management of pure bred Holsteins. (Hettinger Substation) N.Dak.

Food requirement for growing dairy cattle. Minn., Nebr.

A study of the weight in dairy cattle. Nebr.

Weight of dairy cattle as influenced by pregnancy, age, and methods of handling. Idaho.

Standards of growth for dairy cattle. Mo.

A study of the normal growth of dairy cattle. Idaho.

The normal growth of dairy and beef cattle as a whole and of certain parts. Me.

The determination of the growth curves of dairy and beef cattle. Me.

A study of methods of marking cows for identification. Idaho.

Study of the relation of one lactation to another in the dairy and beef breeds of cattle. Me.

Breeding. (See also Genetics.)

Cattle breeding: To determine the best method of developing a strain of dairy cattle adapted to Great Plains conditions. To study a cooperative breeding enterprise and to determine feasible means of procedure. N.Dak.

Herd development work. To develop a high-producing herd by the use of proven sires; the value of a good sire by the increased production of his daughters over that of their dams. To compare the results of developing a herd by the use of good sires v. the use of high-producing females. (Coastal Plain Station) N.C.

Breeding. (Cont.)

Cattle breeding: To encourage the breeding of improved cattle, and to determine the degree of hardiness possessed by progeny of pure bred Ayrshire cattle under Guam conditions and to evolve a strain of cattle for Guam resulting from different crosses of Ayrshire on native cows for the purpose of attaining maximum hardiness, size, feeding qualities, etc. Guam.

A comparison of line breeding and outcrossing as systems of breeding dairy cattle. S.C.

Cattle experiments. To analyze by crossbreeding experiments, by private records and advanced registry data, the mode of inheritance of the characters found in dairy cattle with especial reference to milk yield, butter-fat percentage and beef production. Me.

A study of the prepotency of the bulls used in the dairy herd. S.C.

Analysis of the ability of different bulls within the different breeds, to transmit milk yield and butter fat percentage to their offspring. Me.

Cattle breeding experiments for milk. The production of hardy milk stock for Alaska. Alaska.

Influence of feed, environment, and breeding on native unimproved cows, and their offspring, as regards development of milk-producing qualities, composition of milk, digestive capacity and utilization of feed in dairy and beef production. Iowa.

Development of dairy qualities in Galloways. To develop a hardy dairy breed. Alaska.

Breeding dual purpose cattle. To test adaptability of milking Shorthorns to that section of the country. Alaska.

Inbreeding of dairy cattle in relation to health and production. Ohio.

Inbreeding and line breeding compared with outcrossing as regards its effect upon dairy cattle, their milk and butterfat production, conformation, fecundity, and general characteristics. (In cooperation with the U.S. Department of Agriculture). Idaho.

Line breeding of Holsteins. S.C.

Breeding experiments with dairy cattle. A comparison of line breeding with outcrossing and inbreeding with outcrossing in the breeding of dairy cattle. N.J.

Management of dairy herd. Breeding for type and production. (North Central Branch Station) Minn.

Grading up a herd of grade Jersey dairy cattle. Tex.

The transmission of sex in dairy cattle. Ill.

Calves and heifers.

Calf feeding experiment. Ky.

A study of (dairy) calf rations. Wash.

Comparison of feed for (dairy) calves. Iowa.

A study to determine the feed required and the cost of raising dairy calves. S.C.

A study of the protein requirements for growth of dairy calves. Penn.

A study of the best methods of feeding calves while receiving milk. Idaho.

Raising calves with the minimum amount of milk. Minn.

Minimum milk requirement for raising dairy calves. N.J.

Supplementing whole milk in raising calves. Md.

Rations for dairy calves. (a) Limited amount of whole milk or skim milk; (b) whey as a substitute for skim milk. Wis.

The rearing of calves on substitutes for skim milk. A study to establish a formula of proved value for a milk substitute; and to determine the general principles, chemical, physical, and physiological, on which the formation of substitute must be based. N.Y. Cornell.

Substitutes for milk in feeding dairy calves. Ariz.

Peanut meal v. cottonseed meal for maturing heifer calves. To determine the relative value of peanut meal as compared with cottonseed meal as a protein carrier for developing dairy heifers. (Coastal Plain Station) N.C.

Study of calf raising on home-made calf meals- (mixture of bran, ground barley, oil meal, and ground clover hay). Oreg.

Value of blackstrap molasses as a dairy calf feed. Miss.

Best age at which to begin pasturing dairy calves. Miss.

The addition of yeast to rations as ordinarily used in calf raising. Minn.

Relation of stomach worms to dairy calf raising. Miss.

The self-feeder for dairy calves. To determine the practicability of using the self-feeder in rearing dairy calves. Nebr.

Self-feeder experiments with dairy calves. Mich.

Wintering dairy heifers. Va.

Calves and heifers. (Cont.)

Winter rations for young dairy stock in Idaho. Idaho.

Winter rations for dairy heifers. Ky., Oreg.

Winter rations for dairy heifers. To determine the most economical ration for wintering dairy heifers under New Jersey conditions. N.J.

A study of the value of different rations for dairy heifers. To determine the relative value of rations for dairy heifers for winter feeding, when the ration is made up of various roughages with and without grain. Ind.

Value of various protein supplements for growing dairy heifers. Comparison of alfalfa, bran, cottonseed meal, and oil meal as protein supplements in the feed of calves. Kans.

A study of the value of feeding silage with alfalfa hay for winter feeding of dairy heifers. (Caldwell Substation) Idaho.

Feeds for wintering dairy heifers under practical farm conditions in Idaho. Idaho.

The influence of nutrition of dairy heifers and age of breeding upon their subsequent development. Mo.

Influence of nutrition of heifers and the age of breeding upon their subsequent development. Protein requirements for growth. Mo.

Dairy heifer development. The effect of three rations fed continuously. Kans.

A comparison of the efficiency and cost of self-feeding and stable feeding young heifers. W.Va.

Cost of production. (See Rural economics, cost of production.)

Feeding experiments, general. (See also Animal nutrition, silage and silage feeding experiments.)

Dairy cow feeding experiment. Ky.

Maintenance ration for dairy cows. Vt.

A comparison of home-grown and purchased feedstuffs for economical milk production. Fla.

Feeding for milk production. To secure definite data in regard to the feed cost of producing milk with high priced feeds, when cows are fed limited and full rations. (Coastal Plain Station) N.C.

Effects upon milk production of varying amounts of the same feed. Penn. Inst. Anim. Nutr.

Feeding experiments, general. (Cont.)

Use of succulent feeds for milk production. Iowa.

Effect of summer soiling on milk production. (Astoria Branch Station) Oreg.

A comparison of grain feeding with no grain feeding of dairy cows on native pasture. (Colby Branch Station) Kans.

Roughage as a feed for dairy cows. Nebr.

Acre value of pasture for dairy cows. Colo.

Soiling experiments with dairy cows, using alfalfa, clover, corn and sunflowers. Mont.

Development of a soiling crop system for summer soiling for dairy cows. (Astoria Branch Station) Oreg.

A study of the soiling system for dairy cattle under Nebraska conditions. Nebr.

Green alfalfa v. alfalfa hay for dairy cattle. Ariz.

Cut alfalfa hay as a supplemental feed for purchased grains in feeding dairy cows. N.J.

Comparison of first, second, and third cuttings of irrigated alfalfa hay with each other and with corresponding cuttings of dry alfalfa as feeds for milk production. Wash.

Corn and alfalfa feeding experiment (with dairy cows). N.J.

A comparative test of feeding soy beans v. alfalfa for milk production. W.Va.

Sudan grass v. alfalfa hay for dairy cows. Ariz.

A test of Sudan grass as a pasture for dairy cows. (Colby Branch Station) Kans.

Comparative value of cottonseed hulls and different native-grown hays as a feed for the dairy cow. Miss.

On the comparative economy of growing and feeding to dairy cows, silage from early maturing as compared with medium and late maturing varieties of corn. Connecticut Storrs.

The comparative value of various silages for milk production. Idaho.

A study of the value of feeding grain with hay and silage for milk production. (In cooperation with the Caldwell and Sandpoint Substations) Idaho.

Corn stover silage v. normal corn silage for dairy cows. Wis.

Feeding experiments, general. (Cont.)

Corn silage v. cottonseed hulls for dairy cows. Ark.

A comparison of corn silage and sorghum silage for milk production. S.C.

A comparison of sunflower silage and corn silage for dairy cattle. W.Va.

Sunflower v. corn and pea and oat silage for dairy cows. (Upper Peninsular Substation) Mich.

Oat and pea silage v. sunflower silage for milk production. Wyo.

Sunflower silage for dairy cattle. Colo.

The feeding value for dairy cows of sweet clover and sunflower silage. To determine the feeding value of sweet clover silage and sunflower silage as compared to corn silage for dairy cattle. N.Dak.

A study of the value of red clover silage for milk production. Penn.

Effect on mature cows of feeding calf meal, skim milk, and whole milk during the first six months of age. To determine whether the growth and milk-producing ability of dams and vigor of offspring is affected by feeds consumed during the first six months of age. Is impetus for growth affected by these feeds? Can stunted calves be brought to normal size by liberal feeding? Ind.

Effect of cottonseed meal on cows and heifers in reproduction. To determine the effects of various quantities of cottonseed meal on the reproductive organs of beef and dairy females when fed and handled under various conditions. N.C.

Hydrolyzed sawdust for feeding dairy cows. Wis.

Value of blackstrap molasses as a feed for the dairy cow. Miss.

Feeding milk cows during the dry period. To determine the effect of plane of nutrition during the dry period and the consequent condition at time of freshening upon the milk and fat production of that lactation period. N.J.

Protein supplements for dairy cattle.

Dairy rations. To find the best amounts of grain to include in a ration with corn silage. Utah.

The value of feeding grain to dairy cows during the dry rest period. Idaho.

Twenty per cent v. twenty-four per cent protein for dairy cows. Md.

A comparison of rations containing normal, excessive, and deficient amounts of protein. Ohio.

Protein supplements for dairy cattle. (Cont.)

Effect of adding protein-rich concentrates to ration for dairy cows of alfalfa hay, corn silage, and grain. Wis.

Preparation of corn for dairy cows. To study the relative economy and efficiency of various methods of preparing corn for dairy cows, including whole ear corn, broken ear corn and cobmeal, shelled corn and ground corn. Iowa.

A study to determine the most economical concentrate to supplement cottonseed meal as a feed for dairy cows in the South. S.C.

Coconut meal v. gluten meal for dairy cows. Md.

The effect of peanut meal when fed to dairy cows on the qualities of the butter fat and methods by which this feed may be fed without undesirable effects. Ga.

Comparison of a mixture of velvet bean meal and cottonseed meal v. wheat bran and cottonseed meal when supplemented with silage and hay as a feed for dairy cattle. Ala.

Herd management.

The dairy herd. Maintenance and management. (Scottsbluff and North Platte Substations). Nebr.

Dairy farm management. To encourage the introduction of dairying as a type of farming for this area of the State. (Caldwell Substation) Idaho.

Dairy farm management. To determine the proper number of animals to be maintained on an 80-acre unit of land and their proper management. (Caldwell Substation) Idaho.

Dairy farm management. To encourage the introduction of dairying as a means of increasing farm profits and of maintaining permanent soil fertility. (Sandpoint Substation) Idaho.

Study of dairy management for Maine conditions. Me.

Herd improvement and management under coast conditions. (Astoria Branch Station) Oreg.

Dairying in the tropics. The production, handling, and marketing of milk and the making of butter under tropical conditions. P.R.

Commercial disinfectants. N.J.

Milking machines.

A study of milking machines. Iowa.

Milking machines. (Cont.)

Milking machine experiment. Advantage or disadvantage in the use of glass enameled vat for handling milk. S.Dak.

Testing the efficiency and practicability of cleaning and caring for milking machine parts. Conn. Storrs.

Milk secretion and production.

Physiological studies on the mechanism of milk secretion. Me.

Synthetic capacity of the mammary gland. Wis.

Milk secretion studies, using condemned tubercular cattle. The study of the source of milk solids. Vt.

On milk and fat production and other associated characters. N.Y. Cornell.

Economics and milk production in New York State. N.Y. Cornell.

The relation of body conformation to milk yield. Me.

Cattle experiments. Relation of feed and feeding to growth and milk yield. Me.

Cattle experiments. Relation of age to milk yield and butter fat percentage. Me.

Factors influencing the percentage and quantity of the fat in the milk of cows on official test. Including (a) the effect of the temperature on the percentage of fat in milk and on metabolism; (b) feed reduction- 50 per cent for three days; (c) influence of the advance of lactation on the percentage of fat in cow's milk; (d) influence of season of year on the percentage of fat in cow's milk; and (e) the variation of fat in successive fractions of a milking Mo.

Investigations into causes of variation in milk and fat production. (a) Effect of individuality of cows upon milk and fat yields; (b) influence of alimentary fat on the yield and composition of milk; (c) investigations on the influence of alimentary carbohydrates on the yield and composition of milk; (d) effect of proteins from restricted sources on the yield and composition of milk. Iowa.

Relative utilization of energy in milk production and in fattening. Penn. Inst. Anim. Nutr.

Determination of the protein and energy requirements for milk production. Va.

The minimum protein requirement for milk production. Penn. Inst. Anim. Nutr.

Efficiency of various protein mixtures for growth in swine and milk production in dairy cows. Wis.

Milk secretion and production. (Cont.)

Experimental analysis of the heredity factors determining milk and meat production in cattle. Wis.

Late v. early fall calving in the dairy herd. To determine the best season of the year for the dairy cow to be in the lactation period. Miss.

Effect of diseases in the cow on milk. To determine the rôle played by milk both in the spread of disease in cattle and causation of unfavorable symptoms of diseases in man. Mich.

Analysis of milk records. To determine the age changes and the relation between total solids not fat and milk production per cent fat and butter fat. To determine the reliance which may be placed in the different points used in the score card as a measure of milk production of the cow. Me.

A study of colostrum with special reference to the effect of heat (pasteurization) on its physico-chemical, bacteriological, immunological and nutritional changes. Mo.

Official testing and inspection.

Official testing of dairy cows. Mo.

Official testing of dairy cows in the State. S.C.

Official testing for advanced registry or register of merit in the State of Idaho. Idaho.

Official dairy testing. Wash.

Advanced registry testing. Va.

Certified dairy inspections. Calif.

Supervision of dairy cow records. Colo.

DAIRY PRODUCTS.

Bacteriology of dairy products.

The bacterial content of milk from milking to cooling, and its control. S.C.

Microbiological investigations in milk. Mass.

Factors affecting the germ content of milk. Ill.

The effect of carbon dioxide gas upon the germ content of milk and the dairy products. Ill.

Bacteriology of dairy products. (Cont.)

A comparison of the direct microscopic method and the plate method for counting bacteria in milk. N.Y. Cornell.

Comparison of methylene blue reduction test and other tests for determining bacterial content of milk. Wis.

Studies of the compounds in milk and its products and their changes under the influence of certain classes of bacteria. N.Y. State.

Changes that take place in the quantitative bacterial content of morning milk. Minn.

Bacteriological examinations of certified milk. Calif.

Tubercle bacteria in milk and effect of pasteurization on these organisms. Minn.

Studies on the bacterial flavors and odors of milk. Iowa.

The American high acid organisms found in milk. Iowa.

Bacteriological and chemical studies of abnormal milks. Iowa.

Bacteria responsible for slimy milk fermentation. Iowa.

An organism causing the coagulation of canned evaporated milk. Iowa.

A study of the Torula forms responsible for the yeasty fermentation in cream. Iowa.

Bacteriological studies on ice cream. Iowa.

The bacteriology of ice cream. Okla.

The bacteriology of butter. Okla.

Chemical and bacterial study of the keeping qualities of butter. To determine the action of specific bacteria upon milk proteins and a study of the cleavage products produced by the action of those organisms. Ind.

Bacteriological investigations in cheese-making to devise methods of controlling the manufacture. N.Y. State.

Flavor production in cheddar cheese. Wis.

Study of application of methods of sterilizing milking machines to farm conditions. N.Y. State.

The use of available chlorin as a germicide in milk and milk products. Ark.

The bacterial flora of milk utensils with reference to the clumping of bacteria in milk. N.Y. Cornell.

Bacteriology of dairy products. (Cont.)

Bacterial content of creamery waste. N.Y. Cornell.

Butter and buttermaking.

Study of the chemistry of butter fat and the effect of food in modifying its chemical and physical character. Mass.

A study of the chemistry and physico-chemistry of churning and the factors which influence churnability. Minn.

Moisture contents of hard and soft butters. Determination of relationship, if any, of moisture content to varying solidity, texture, etc. Vt.

Detection of butter fat adulterants. To develop methods for detecting and approximate quantitative estimation of butter fat adulterants. Ind.

Whey butter v. milk butter. Wis.

Factors influencing grade of butter. To grade cream for butter making- effect of pasteurization for improving butter. Temperature of churning at different seasons. Methods of salting. Uniform methods of manufacture. Okla.

Neutralization of cream for buttermaking. N.Y. Cornell.

A consideration of the effect of neutralization of the acidity in cream upon the analysis of the resulting butter, upon the acidity of the butter while held in storage and upon some of the constants of butter. N.Y. Cornell.

Factors influencing butter shrinkage. Iowa.

Factors influencing the keeping quality of butter. Minn.

Keeping qualities of butter. To determine the factors influencing quality, flavor, and deterioration of butter during storage, including influence of salt, decomposition of proteins, pasteurization, and bacterial flora, as well as the influence of temperature, coloring matter, lactose, fat, and enzymes. Mich.

Study of flavor and keeping quality of butter made from sweet cream, from cream with lactic starter and from cream ripened with B. acidophilus and stored for eight months. Conn. Storrs.

Influence of acidity of cream on flavor and keeping qualities of resulting butter. Iowa.

Chemical and bacterial study of the keeping qualities of butter. To determine the action of specific bacteria upon milk proteins and a study of the cleavage products produced by the action of those organisms. Ind.

Butter and buttermaking. (Cont.)

The influence of storage upon the vitamin content of butter. Minn.

Effect of pasteurizing temperature on quality and keeping quality of resulting butter. Iowa.

The effect of heating and other factors on the fat-soluble vitamin contained in butter. Conn. State.

Comparison of alkali, alcohol, rennet, and acid, temperature and other tests for ripeness of milk: (a) For cheese making; (b) for butter making. Vt.

A study of the commercial manufacture of acidophilus milk and butter. Conn. Storrs.

The effect of peanut meal when fed to dairy cows on the qualities of the butter fat and methods by which this feed may be fed without undesirable effects. Ga.

A study of California butter. Calif.

The bacteriology of butter. Okla.

A study of mold development on butter sent to the University Farm by X creamery. Calif.

Butter oil as a substitute for sweet butter in manufacture of homogenized cream, ice cream, etc. Comparative studies. Vt.

A comparison between butter factory and cheese factory in returns to the producers. Iowa.

Cheese and cheesemaking.

Studies in cheesemaking. Objects: Effect of temperature of cooking on texture of cheese; effect of amount of rennet or pepsin on rapidity of curing cheese; the possibility of curing cheese in Oklahoma factories; controlling factors in proper handling and marketing of cheese in Oklahoma. Okla.

Manufacture of cheddar cheese from pasteurized milk. Wis.

The distribution of moisture in cheddar cheese and changes in its percentages. N.Y. Cornell.

Cheesemaking (cottage, Neufchatel, whey, Romano, etc.). A study of the practice of cheesemaking with special reference to the manufacture of foreign cheeses. Vt.

Investigation of Swiss cheesemaking methods. Wis.

Cheese and cheesemaking. (Cont.)

Comparison of alkali, alcohol, rennet and acid temperature and other tests for ripeness of milk: (a) For cheese making; (b) for butter making. Vt.

The use of pepsin as a substitute for rennet in the manufacture of California (granular) and cheddar cheese. Calif.

Bacteriological investigations in cheesemaking to devise methods of controlling the manufacture. N.Y. State.

The bacteria causing the formation of gas in soft cheese. Iowa.

Factors concerned in the coagulation of milk by heat. Wis.

Butter fat substitutes to be used in milk and skim milk for cheesemaking and for feeding purposes. Iowa.

A comparison between butter factory and cheese factory in returns to the producers. Iowa.

Ice cream studies.

A study of the principles of ice cream making. Nebr.

Problems in the manufacture of ice cream. Penn.

The manufacture and chemical and bacterial study of ice cream. To determine the most suitable and unsuitable methods of manufacturing and storing ice cream and the effects of the methods of manufacture and storage upon the quality of the ice cream. Ind.

Bacteriological studies on ice cream. Iowa.

Ice cream investigations. Studies of bacterial factors in the manufacture, transportation, and storage of ice cream. Kans.

Studies in ice cream making. Effect of pasteurization of mixes on overrun and of pasteurization and emulsification on overrun, uniformity of overrun from pasteurized and emulsified mixes. Use of commercial ice cream powders, standardization of mixes for total solids. Bacterial counts on ice cream. Okla.

Factors influencing yield and consistency of ice cream. Iowa.

The effect of each ingredient in the manufacture of ice cream. Mo.

Butter oil as a substitute for sweet butter in manufacture of homogenized cream, ice cream, etc. Comparative studies as indicated in title. Vt.

Ice cream studies. (Cont.)

Methods of testing ice cream for butter fat. A comparison of various acids as to time required, ease of manipulation, character and accuracy of test; comparison of different ingredients upon character of test, such as sugar, gelatine, gum tragacanth, and ice cream powder, fruits, eggs, and color material; influence of method of obtaining samples, time cream has been packed and manner of packing; comparison of results with cream and milk bottles; effect of emulsifying and homogenizing upon ease with which test may be made. Okla.

Milk composition, handling, and marketing.

The important factors in the production of sanitary milk and the means and methods of milk examination. N.Y. State.

Study of milk clarification. Iowa.

A study of the proteolytic compounds in milk. N.Y. Cornell.

Influence of mineral constituents upon coagulation of milk at condenseries during sterilization. Wis.

Study of the compounds in milk and its products and their changes under the influence of certain classes of bacteria. N.Y. State.

Factors influencing the viscosity of milk and their relation to creaming. Minn.

The creaming ability of milk. Iowa.

Factors affecting the efficiency of hand separators and causes of variation in cream tests. Nebr.

Enzymes of milk and their relation to abnormal fermentation. Minn.

A study of some of the effects of bacterial action and the heating of milk on the milk proteins. N.Y. Cornell.

The pasteurization of milk in the final container. To study the efficiency of a commercial method of pasteurizing in the bottle and to study methods of cleaning, rinsing, and sterilizing bottles and other steps in the process which might influence its efficiency. Okla.

The freezing point of milk from normal and abnormal cows. Conn. State.

Factors affecting the total butter fat content of cows' milk during a period of two days. N.J.

Factors influencing the percentage and quantity of the fat in the milk of cows on official test. Including (a) the effect of the temperature on the percentage of fat in milk and on metabolism; (b) feed reduction- 50 per cent for three days; (c) influence of the advance of lactation on the percentage of fat in cows' milk; (d) influence of season of year on the percentage of fat in cows' milk; and the variation of fat in successive fractions of a milking. Mo.

Milk composition, handling, and marketing. (Cont.)

- A study of the factors influencing the milk yield and fat content of milk. Ill.
- The influence of the diet of the cow upon the vitamin content of cows' milk. Minn.
- Determination of how the feeding of velvet beans affects the melting point of butter fat in milk. Fla.
- Determination of how the feeding of peanut meal affects the melting point of butter fat in milk. Fla.
- Influence of feed on flavor of milk. Iowa.
- Effect of heat on the calcium phosphates of milk. Minn.
- Physico-chemical factors involved in the clotting of milk by rennet. Minn.
- The apparent acidity of fresh milk and the detection of small amounts of real acidity. N.Y. Cornell.
- A physical chemical study of milk with high apparent (abnormal) acidity. N.Y. Cornell.
- A study of the commercial manufacture of acidophilus milk and butter. Conn. Storrs
- Studies on the bacterial flavors and odors of milk. Iowa.
- Bacteriological and chemical studies of abnormal milks. Iowa.
- Onion flavor in milk. To find some practical means of eliminating the onion flavor from milk. N.C.
- Fishiness in milk. Iowa.
- Insects injurious to market milk. To determine the importance of the various species concerned, to adapt already known measures and to discover better ones for any species that proves to be seriously injurious. N.J.
- The toxicity of milk. Iowa.
- Reading the fat column in the Babcock test for butter fat in milk. Iowa.
- Studies in the distribution of city milk supplies. Mich.
- Market milk investigations. To study old methods and attempt to develop new ones for the determination of the bacteria condition of dairy products with special reference to market milk. Mich.
- Investigation of market milk of Iowa. Iowa.

Milk composition, handling, and marketing. (Cont.)

Investigations of methods of marketing milk in Lexington, Ky. Ky.

The marketing of dairy products in Oklahoma. To ascertain general prices of butterfat, of milk and cream in all sections of the State at four periods of the year. The kind of market available; amount of butter fat, milk, or cream offered for sale at centers in all sections of the State, methods of marketing and form in which butter fat is marketed; frequency of marketing and the factors determining prices. Okla.

Setting up and operation of condensed milk pans. N.Y. Cornell.

Chemical and physical properties of reconstituted and reconstructed milk. Minn.

Factors influencing the keeping qualities of milk powders. Minn.

A study of the antiscorbutic properties of powdered milk made by the spray process. Minn.

Factors influencing the manufacture of commercial buttermilk. Okla.

Miscellaneous.

Miscellaneous experiments and reports on the manufacture of dairy products. Calif.

To conduct limited investigations of dairy and creamery troubles as they may arise. Mich.

The organization and construction of creameries. Iowa.

The organization and management of Minnesota creameries, considered as local marketing agencies. Minn.

AGROTECHNY.

Cane sugar.

Investigation of "thin (cane) juice" clarification. Including (a) study of the precipitate produced by sulphur dioxid treatment of juice and effect of its removal; (b) effects of hydrogen and hydroxyl ion concentrations in the various processes employed for clarification and control of the sulphitation process; (c) experiments with decolorizing carbons to remove coloring matter and other nonsugars. The effect of acidifying cane juice while the same is undergoing treatment with decolorizing carbon. La.

Decomposition products of reducing sugars by alkaline clarification (glucinic acid, etc.). La.

Cane sugar. (Cont.)

Investigation on the sulphitation and other clarification processes. To study the effect of nonsugars, especially coloring matter occurring in the juice of sound cane or formed during the process of manufacture, on the yield and color of the products, and to devise methods for obtaining maximum yields of white sugar. La.

Study of decolorizing carbons. An investigation of the nature of decolorization, especially by vegetable decolorizing carbons, from a point of view of colloidal chemistry. Experiments on the refining of raw sugars and the manufacture of white sugar directly from cane juice by means of decolorizing carbons. La.

Microbiological study of the deterioration of cane sugars. To determine the rôle played by bacteria and yeast in the fermentation of stored sugars and the conditions that influence this process. La.

Influence of red rot on the composition of sugar cane. To ascertain the effect of red rot on the yield and color of sugar cane products. La.

Study of coloring matters occurring in sound canes, or formed during the process of manufacture, and their effect on the color of the products. La.

Maple sugar and sirup.

Studies and cost of maple sirup production. Mich.

VETERINARY MEDICINE.

Anthrax.

Anthrax. Oreg.

Anthrax: A study of general control measures with special attention to the bacterial diagnosis of the disease. La.

Cattle diseases. (See also specific diseases.)

Cattle loin disease in the Coastal Plains of Texas. Tex.

A study of red water in cattle. Wash.

An unidentified hemorrhagic disease in cattle. Nev.

Unknown disease of cattle in Fort Klamath District. Oreg.

Contagious abortion in cattle. To determine a means of controlling bovine infectious abortion. Mich.

Cattle diseases. (Cont.)

Infectious abortion in cattle. Bacteriological and pathological studies. La.

Infectious diarrhea of cattle. La.

A study of immunization of cattle against blackleg by using aggrëssins manufactured in the laboratory, also a study of immunity produced by using powder vaccine of double strength. Okla.

Diagnosis and eradication of Johne's disease. Wis.

Coccidiosis in cattle. Mont.

Control of calf lung worm. W.Va.

Sterility in cattle. Mont.

Investigations of sterility of cows. Wis.

Effect of diseases in the cow on milk. To determine the rôle played by milk both in the spread of disease in cattle and causation of unfavorable symptoms of diseases in man. Mich.

Contagious abortion. (See also serum production.)

Contagious abortion. Colo.

Infectious abortion of dairy stock. Conn. Storrs.

Abortion disease investigations. Studies of pathological lesions. Studies of blood tests and attempts to induce immunity. Kans.

Infectious abortion caused by B. abortus (Bang). Oreg.

Contagious abortion in cattle. Including (a) the pathology of sterility, (b) the agglutination and fixation test, (c) bacterial flora of the vagina and uterus of the cow, (d) infectious white scours and calf pneumonia, (e) ovaritis, and (f) production of artificial immunity. Minn.

Investigation of contagious abortion. Including the study of sterility as a sequel to abortion infection. Wyo.

Investigations with contagious abortion in cattle. To determine effect of a more or less prolonged period of fallowness or rest from breeding on the vitality of the Bacterium abortus (Bang) harbored by the bovine host. Mo.

Study and control of bovine abortion and complications in the college herd. Mass.

Abortion observations. To determine if wheat product feeds tend to develop the abortion bacilli and if corn fed products foster the growth of anti-bodies. Md.

Contagious abortion. (Cont.)

Field experiments with contagious abortion vaccine. Wis.

Infectious abortion in cows. To produce a serum that will protect pregnant animals against infectious abortion. Ind.

Immunizing horses and cattle against contagious abortion. Ky.

Immunization of heifers against contagious abortion by using abortion bacilli. Wis.

Treating for contagious abortion with methylene blue, carbolic acid and lugol solution. Ark.

The efficiency of commercial anti-abortion vaccines. Ark.

Investigations on contagious bovine and porcine abortion and method of diagnosis. Wis.

Transmissibility of bovine infectious abortion to swine. Ark.

Hairlessness and goitre.

The cause and prevention of hairless pigs. Mont.

Hairless litters. To determine the cause or causes of hairless litters. To learn whether particular breeds or families of swine are especially susceptible, to study the habits, degree of vigor, longevity, gestation period of hairless litters and the peculiarities of individual hairless pigs: To study the iodine treatment for hairlessness. N.Dak.

Goitre and associated conditions in domestic animals. Wash.

Influence of conditions of environment; high-protein feeding and constipating diets on the development of hairless pigs. Wis.

Hemorrhagic septicemia.

Hemorrhagic septicemia. Ky.

Hemorrhagic septicemia in cattle. Oreg.

A study of the pathogenicity as well as antigenic and biologic properties of the organisms belonging to the hemorrhagic septicemia group. Nebr.

Hog cholera. (See also Serum production.)

Study of hog cholera. Mass.

Hog cholera. (Cont.)

The isolation and cultivation of the specific microorganism of hog cholera and the investigation of methods of treatment based upon a vaccine. Ky.

A systematic study of the fundamental facts underlying the development of hog cholera immunity and hyperimmunity. N.Dak.

Lesions characteristic of hog cholera in immune carcasses. Minn.

An experimental study of hog cholera and the factors concerned in immunity against the disease. Mo.

To determine the age at which pigs from immune mothers become susceptible to hog cholera. Md.

A record of the results of hog cholera immunization. Calif.

To obtain the percentage of double treated hogs that may later become susceptible to cholera; to find the proper age that pigs may be immunized by the double treatment, and length of time immunity of double treated pigs may be expected to last. Md.

Microscopical and cultural examination of hog cholera blood. To study the hog cholera virus and the relation of invading organisms to hog cholera. Ind.

Experimental study of hog cholera virus. Hog cholera exposure experiment. To determine the length of the period that a hog which has recovered from cholera, may act as a carrier of the disease and to determine the length of time that cholera virus may live outside of the hog's body and the relation of stable flies to the distribution of the disease. Ind.

Experiments on complement fixation in hog cholera. Mo.

Experiments on the viability of hog cholera virus. Mo.

Longevity of hog cholera virus. Minn.

A study of the vitality of hog cholera virus. Okla.

Horse diseases. (See also specific diseases.)

Infectious disease of the respiratory system of horses. Oreg.

Swamp fever in horses. N.Dak.

Swamp fever or infectious anemia in horses and mules. Tex.

Transmission of swamp fever in horses. Wyo.

Horse diseases. (Cont.)

Orchard horse disease. Study of the disease to determine the cause, pathogenesis, pathological changes and distribution, and a method of prevention, control, and treatment. Wash.

Contagious abortion of mares and pyaemic arthritis of foals. Minn.

Forage poisoning in horses. Colo.

Studies of horse plague and miscellaneous diseases. Kans.

Pathology and bacteriology of the reproductive organs of the mare and their relation to sterility. Ky.

Necrobacillosis.

Investigations of necrobacillosis of pigs. Wis.

An enquiry into the nature of necrobacillosis in young pigs. Nebr.

Necrobacillosis- a study of the various activities of Bacillus necrophorus. Wyo.

Parasites. (See also Sheep and Poultry Diseases, and Entomology- Parasites, external.)

The endoparasites of man and domesticated animals. Minn.

Insects injurious to live stock. The family Tabanidae. Horse flies and deer flies. La.

The internal parasites of domestic animals. Their identification, classification, intermediate hosts, and methods of control. La.

Life history and control studies of pathogenic parasites of food animals. Including lung worms of swine (Metastrongylus apri and M. brevivaginatedus) and the control of tape worms of poultry (Syngamus trachealis) and of stomach worms of sheep, with particular reference to the twisted wireworm (Haemonchus contortus) and to Ostertagia circumcincta. Mich.

Parasitic diseases of domestic animals of Guam. To determine the extent of parasitic infestation among the domestic animals of Guam. Guam.

Life cycle of Moniezia expansa. Wyo.

Cattle tick experiments. To determine the general effect of ticks and tick treatments upon pure bred, grade, and native cattle. Guam.

Life history investigations of the short-nosed ox louse (Haematopinus suryastermus Nitzsch). Tenn.

Parasites. (Cont.)

Control of biting lice on sheep. Calif.

Insects and parasites affecting live stock. The screw worm and wool maggot.
(In cooperation with the Bureau of Entomology, U.S.D.A.). Tex.

Anthropods injurious to poultry production. To determine the importance of the various species concerned, to adapt already known measures, and to discover better methods of controlling such species as seem to be worthy of attention.
N.J.

Poisoning and poisonous plants. (See also Botany and Chemistry.)

Forage poisoning. Miss.

Forage poisoning of horses. Oreg.

Poison plants of our grazing ranges. Ariz.

Forage poisoning: Field and laboratory investigation of the nature and etiology of forage poisoning. To discover new facts relative to the cause and extent of forage poisoning and extend the present information by demonstrating the preventative and curative properties of Botulinus serum. Ind.

Beet pulp and molasses poisoning. Utah.

Food poisoning in sheep and cattle. Active principle of whorled milkweed. Colo.

Loco eradication and loco poisoning. Mont.

An attempt to ascertain the toxic effects of Red Buckeye (Adsculus pavia) when ingested by live stock. Ala.

Poisonous range plants. Including Tetradymia glabrata, Atriplex canescens, and A. confertifolia, Halerpestes cymbalaria, Artemesia spinescens, and four species of lupines. Range management in relation to poisonous range plants.
Nev.

The toxicology of cottonseed and their products. The determination of the cause of the injury frequently resulting when cottonseed meal is fed to swine and the elimination of this cause of injury. N.C.

The lesions and pathology of hogs fed on velvet beans. Ala.

Poultry diseases. (See also specific diseases.)

Chicken diseases. Colo.

Poultry diseases. (Cont.)

- Study and control of poultry diseases in college and station flocks. Mass.
- Survey of poultry diseases in Nebraska. Nebr.
- Observations concerning the prevalence and distribution of poultry diseases in New Jersey. N.J.
- Etiology and pathology of fowl cholera. Methods for prevention and control. R.I.
- A study of the bacterial infection of eggs, with special reference to the bacteria of fowl cholera, fowl typhoid, and bacillary white diarrhea. R.I.
- Methods of diagnosis of bacillary white diarrhea of poultry. Mass.
- White diarrhea in chickens. Conn. Storrs.
- Relation between adequacy of diet and immunity to roup. Kans.
- Studies of pure culture bacterial vaccines for roup and fowl typhoid. Kans.
- Investigation of roup (avian diphtheria) and chicken pox (Epithelioma contagiosum) Calif.
- Chicken pox immunity studies. Conn. Storrs.
- Preventative vaccination for chicken pox. Preparation and testing of a vaccine for the prevention of chicken pox and securing accurate data as to its protective properties. Ind.
- Epitheliosis of poultry. N.J.
- Limberneck in chickens. Ill.
- Is diet an etiological factor in limberneck in poultry? Minn.
- Botulism in fowls. Oreg.
- Round worms and tapeworms of poultry. Study of life history and the tissue affected to determine their comparative pathology and toxicity. Okla.
- Embryology of cestodes. House flies as an agent in disseminating fowl tapeworm. Kans.
- The life history and methods of control of the chicken nematode Heterakus papillosa. Minn.
- Studies of the life histories of the chick tapeworm (Choanotoenia infundibuliformis) and the chick nematode (Heterakis perspicillum). Kans.
- The proventriculus and gizzard worm of fowls. Minn.

Poultry diseases. (Cont.)

Gape worms in poultry. To determine method of transmission and find a remedy. Md.

Biological studies of stick-tight flea, chicken tick, and chicken mite. Okla.

Poisonous effects of rose chafers. Conn. Storrs.

Green food v. antiseptics as a preventative of intestinal disorders of growing chicks. Ind.

A report of inquiries from poultry raisers of California in regard to outbreaks of disease among their flocks. Calif.

Blackhead disease of turkeys. R.I.

Study of blackhead in turkeys. Conn. Storrs.

Pathological studies. Studies on (a) entero-hepatitis of turkeys- to determine if the parasite is an ameba or a coccidia, and how to raise turkeys to avoid blackhead, (b) diarrhea of adults- to determine causes and methods of combating these diseases, (c) diarrhea of chicks, (d) other apparently contagious diseases, (e) parasitic diseases, parasites of the State and how to combat them, (f) tumors, both malignant and benign, (g) noncontagious diseases, (h) histological studies, (i) physiological studies, (j) anatomical studies. N.C.

Serum production, vaccines, bacterins, and antitoxins.

Serum production. Nebr.

The preparation and distribution of biological products. Ky.

Serum production: Investigation of methods of manufacturing Dorset-Niles anti-hog cholera serum: To improve methods of producing anti-hog cholera serum: Maintain such relation with cholera outbreaks and use of anti-hog cholera serum in the field as will enable to observe field conditions as they relate to hog cholera vaccination. Ind.

The production and distribution of hog cholera virus and serum. Minn.

Technical improvements in the manufacture of hog cholera serum and virus. Calif.

Cost of producing anti-hog cholera serum. To determine the actual cost of producing hog cholera serum. Ind.

Production and distribution of anti-hog cholera serum. Mo.

Special biological products, including the distribution of hemorrhagic septicemia bacterin, white scours serum, and blackleg vaccine. Minn.

Serum production, vaccines, bacterins, and antitoxins. (Cont.)

The use of killed and sensitized cultures of abortion germ for cattle as a means of immunizing cattle against contagious abortion. Okla.

Botulinus antitoxin. Ill.

Blackleg vaccine distribution. Mo.

Sheep and goat diseases. (See also specific diseases.)

Pneumonia in sheep. Mont.

Sheep losses in feed lots: (a) Hemorrhagic septicemia; (b) losses on peas in the San Luis Valley; (c) Ictero hematuria. Colo.

Lung worms of sheep. Okla.

Study of stomach worms of sheep. Conn. Storrs.

Stomach worms in sheep (Haemonchus contortus). Completion of life history- if other methods of infection besides the food-resistance of the embryos to weather conditions and their effect on the activity and length of the embryonic stage methods of eradication and control. Okla.

Stomach worms in sheep and goats. Experiments with a view to ridding the animals entirely from the worms in such a manner as to involve the minimum amount of labor. Tex.

Life history of Sarcocystis tenella, parasitic in the muscles of sheep. Wyo.

Life cycle of Thysanosoma actinioides, a common tapeworm of sheep. Wyo.

A study of swell head of sheep and goats. Tex.

Study of cryptorchidism in goats. Tex.

Swine diseases. (See also specific diseases.)

Diseases of swine. Calif.

Hog cholera and closely allied infectious swine diseases. N.Dak.

To determine the nature of the disease affecting swine (so called mixed infection) particularly after vaccination with hog cholera. Okla.

Infectious swine diseases or "mixed infection". Study of causes, symptoms, post-mortem lesions, both macroscopical and microscopical, manner of transmission and control measures. La.

Swine diseases. (Cont.)

Identification of bacteria causing "mixed infections" diseases of swine and a study of their pathogenic properties. Ind.

Abortion in sows. Ill.

An enquiry into the nature of necrobacillosis in young pigs. Nebr.

Investigations on the action and dose of vermifuge remedies for the hog. Mo.

Mineral mixtures and medications for wormy and unthrifty pigs. To determine effect of a mineral mixture and of national hog remedy upon the condition of pigs and rate of gain where above were fed. N.C.

Distribution of abortion infection in swine by positive reacting immune carriers. Mo.

Immunization of sows against infectious abortion and further studies on the etiology of the disease. Ky.

A study of Creatinuria in pigs. Wis.

Tuberculosis.

Transmission of tuberculosis in cattle and swine. Mo.

A study of the causes and means of preventing the spread of tuberculosis in cattle and hogs in California. Calif.

Vaccination against tuberculosis. Wis.

Cooperative experiments in the control of bovine tuberculosis. Calif.

To study factors that may control the metabolism of bovine tubercle bacillus. Wash.

Tuberculin tests. Studies on artificial sensitization of healthy cattle; whether certain types of cases are liable to react to one test and not to another; temperature as affected by other factors than tuberculin character, intradermal reaction in relation to extent and character of lesions; whether the intradermal is apt to fail in advanced cases and where the resistance of the body has been broken down; the possible inhibition of the intradermal reaction by a simultaneous thermal. Minn.

Tuberculin testing of cows in certified dairies. Calif.

Avian tuberculosis. Ill., Wis.

Miscellaneous.

Laboratory and field diagnosis of animal diseases. Ky.

To investigate important animal diseases as necessity may arise. Colo.

Diagnosis of animal diseases. To assist veterinarians and stockmen in diagnosing outbreaks of disease, and securing material for investigational work. Ind.

Death of animals and cases of serious sickness. Calif.

Investigations of obscure diseases. (Involving the examination of 669 specimens.) Mirm.

Studies of horse plague and miscellaneous diseases of farm animals. Kans.

Venerial form of ligament and leg ulceration. Its cause and control. Mont.

Texas fever immunization work. Tex.

Control of liver fluke infestation through destruction of the snails which act as intermediate hosts. Oreg.

Vaginitis and balanitis. Oreg.

Animal temperatures. Okla.

Temperature range in normal cattle. Mont.

Normal temperatures of live stock in Guam. To determine the normal temperature of cattle, horses, and caribos under Guam conditions. Guam.

Insects affecting the health of animals. Wyo.

RURAL ENGINEERING.

Clearing land.

Clearing of stump land. Iowa.

Land clearing. Use of explosives; method for blasting stumps; and cost of burning stumps. Ala.

Use of war salvage explosives in land clearing. Wis.

Comparison of various strengths of dynamite for blasting pine and hardwood stumps on various types of soil. Wis.

Methods of clearing logged-off hill land and tide land. (Astoria Branch Station) Oreg.

Clearing land. (Cont.)

Studies on time of brushing and seeding cut-over land. Wis.

Investigations in cost of land clearing. To determine the cost of clearing, best methods of first crops that can best be raised on the various types of soil. Minn.

Land clearing. To determine the cost and most practical method of clearing land ready for cultivation. (Sandpoint Substation) Idaho.

Comparison of cost of stumping pine and hardwood stumps on various types of soil (1) when dynamite is used alone (2) when large stumps are cracked with dynamite and then pulled with capstan puller (3) when large stumps are pulled first and then split with dynamite (4) when stumps are pulled with one man puller (5) when stumps are split and pulled with block and line. Wis.

Investigations in land clearing methods and equipment. New methods and implements used in clearing land, stump pullers, tractors, and various combinations of methods and equipment, such as dynamite plus the stump puller, dynamite plus the tractor, use of dynamite before and after pulling, use of live stock and of fire, large and small scale clearing under farm conditions. Minn.

Land clearing. General study of methods and results, and trials of a new stump burner. Oreg.

Investigations in developing newly cleared land. The kinds of plows best adapted to various soil types, hours of labor required for various operations, methods and cost of stone and root picking and comparison of efficiency of disk and plow for preparation of seedbed for first crop. Minn.

The development of a marsh plow for breaking new land. Wis.

Drainage.

Farm drainage and terracing. Ala.

To improve drainage practice and agricultural conditions. Mich.

Drainage of hillside seepage. Iowa.

Determination of relative efficiency of differing depths and spacing of drainage lines. Minn.

Study of the efficiency of underdrains. (2) Amount of run-off from underdrained land; (b) relation of run-off to rainfall; and (c) action of tile drains in lowering the ground water leve. N.C.

Drainage systems. A study of different practices followed over the State and their effectiveness. Mont.

Drainage. (Cont.)

Investigations of low cost methods and manufacture of concrete pipe for use in farm drainage and irrigation. Idaho.

Investigation of causes of failures of agricultural drain tile, the means of obviating such failures and mapping areas where extra precautions are necessary. Minn.

Durability of concrete tile. Wis.

Study of water table and outflow on "white land" and effect of clover, lime, and manure on percolation. Oreg.

Drainage of "grease wood lands" to remove alkali and management to restore the structure of such lands. Oreg.

Drainage and improvement of wet lands. Drainage of tide lands. Oreg.

Drainage and reclamation of tide lands, especially investigations as to drainage systems. (Astoria Branch Station) Oreg.

Swamp and overflow. Ala.

Drainage and water control investigations on peat lands. Minn.

Settling of peat after drainage. Wis.

Drainage of land by pumping from sump or well. Calif.

Cooperative studies in the reclamation and management of Suisun marsh lands. Calif.

Preliminary drainage survey of Imperial Valley. Calif.

Correlation of land and crop values with cost of drainage. Minn.

Miscellaneous drainage investigations. In portions of State needing drainage. Calif.

Farm buildings and equipment.

To study the types of frame and planning of farm buildings from an economic and sanitary standpoint. Mich.

Plans of farm buildings prepared by the Farm Building section. Minn.

Farm structures, including (a) farm houses, (b) general farm barns, cattle barns, (c) dairy barns, (d) horse barns, (e) poultry houses, (f) swine houses, (g) sheep sheds, (h) buildings for crop storage, granaries, corn cribs, potato storage houses, root cellars, (i) milk houses, (j) smoke houses, (k) manure pits, (l) machinery sheds, (m) garages, (n) power plants. Iowa.

Farm buildings and equipment. (Cont.)

Cattle feeding barns and equipments. Iowa.

Dairy barns and equipment. Iowa.

Plans for sales pavilions and barns. Iowa.

Farm conveniences. Equipment for live stock feeding and management, including feed bunks, alfalfa racks, mixing box, dipping vat, combination sheep rack, self feeders for swine, and other miscellaneous equipment. Iowa.

Heating and ventilating of homes. Including installation and operating data. Minn.

Farm building ventilation. Minn.

An investigation into the efficiency of various barn ventilating systems. Iowa.

Comparison of efficiency of King and Rutherford systems of ventilation. Wis.

Silage investigations. To study all conditions regarding use of silo, including material of wall, moisture content, shock corn, fodder, loss of nutrients in silo, silage from legumes, capacity of silos of different depths. Mo.

Silo construction. Including the Iowa silo, the wood hoop silo, treatment to make silo walls impervious, deterioration of concrete in silos, and silo capacities. Iowa.

Deterioration of concrete silos due to the corrosive influence of silage acids and means of prevention. Iowa.

The silo in Guam. To determine the practical value of the silo under Guam conditions. Guam.

Community or centralized hog house construction. Iowa.

Housing pure bred poultry. Ky.

Hydroelectric farm plants. Minn.

Wind power-tests of power mills. Iowa.

Farm machinery.

To study the various farm machines with a view to increasing their efficiency and determining their adaptability. Mich.

Experimental methods and machinery investigations. Iowa.

Farm machinery. (Cont.)

Power machinery. To study the operation and cost, efficiency, and adaptability of stationary engines, tractors, and accessories. Mich.

Standardization of farm machinery. Iowa.

Testing of farm implements. Nebr.

Development of a traction dynamometer for testing of heavy draft implements, and the perfection of integrating devices for studying the records. N.Y. Cornell.

A survey of farm machinery conditions in Arkansas, including types of machinery used. Ark.

Fertilizer distributing equipment. Ala.

Limestone and fertilizer spreaders. Iowa.

The determination of the slippage of various types of wheel equipment. Ind.

Investigations to determine the draft of various farm implements and the cost of different operations with them. To determine the draft of various tillage and other farm implements, the effect of different soil types on draft and the effect of the different treatments of soils on the draft of various implements. Also to determine the cost of different operations. Mo.

The draft of farm wagons. Iowa.

Plow draft investigations. Nebr.

The draft of farm implements- plows. The influence of speed upon the draft of plows. Iowa.

The development of a marsh plow for breaking new land. Wis.

Tractor tests. Nebr.

Use of tractors. Iowa.

Economic study of farm tractors. Mont.

The status of the farm tractor. To study the economic results of the farm tractor as operated under average Indiana conditions, from the viewpoint of saving man and horse power on the farm; increase or decrease of yield and reasons for same, effect of tractor wheels on different types of soil, effect of running wheels on the land compared to the practice of running them in the furrow, results obtained from burning different kinds of fuel, experiences with the different brands of motor oils, expedience with which work is done, other services than plowing rendered by the tractor, problem of securing competent operators, certainty of operation of tractor, upkeep expense, limit of size of farm where power farming is profitable, most favored size, wheel tractor v. caterpillar, general estimate of the value of the tractor as a part of the farm equipment, adaptability of tractors on Indiana farms. Ind.

Farm machinery. (Cont.)

Miscellaneous tests of tractors and farm machinery. Calif.

Tractor and other farm equipment costs on the farm. Mo.

Comparative study of motor cultivation with that of horse-drawn implements. Miss.

Grain grading and cleaning machinery. Iowa.

A study of machinery necessary to space cotton with acid-delinted seed to save cost of chopping. Ark.

Efficiency of various types of silage cutters. Wis.

Effect of kerosene as a fuel upon lubrication of tractor motors. Wis.

A comparison of the efficiency of different systems of vaporizing the heavier fuel used in oil tractors. Idaho.

The comparative values of alcohol and gasoline for power and light. Iowa.

A study of the thermal efficiency and the mechanical reliability of the Hvid engine. N.Y. Cornell.

The Iowa cycle engine. Iowa.

Farm water supply, sewage disposal, and sanitation.

Design and installation of farm water supply systems. Idaho.

Masonry water tanks. Iowa.

An investigation of sanitary conditions on farms and experiments to determine the best types of sanitary equipment. To determine the actual sanitary conditions as they exist on typical farms, and the economy and efficiency of different kinds of sanitary equipment. Mo.

Farm sewage disposal. Minn.

To study the relation of design of sewage disposal systems to successful operation. Mich.

Investigation of the biology of sewage disposal. To find out how sewage may be disposed of with a reduced amount of water and end product containing waste materials in a commercial form. N.J.

Sewage irrigation. Iowa.

Farm water supply, sewage disposal, and sanitation. (Cont.)

A study of the relation of tank design to the accumulation of sludge and scum and the discharge of suspended solids in the effluent, in small domestic septic tanks. N.Y. Cornell.

A study of the effectiveness of various dosing methods in subsurface absorption tile receiving the effluent from small domestic tanks. N.Y. Cornell.

Irrigation.

Irrigation investigations. Mont.

Experiments in the distribution of water and improvement of irrigation practices. Strip border method. Kind of soil, width, and length of borders, preparation, head. Oreg.

Investigations to determine best length and width of borders for "border irrigation". (In cooperation with the Office of Western Irrigation Agriculture Investigations, U.S.D.A.). (Hermiston Branch Station) Oreg.

Investigation of the practicability of irrigating certain comparatively level portions of farms in the semi-arid regions. Idaho.

Surveys of proposed irrigation and proposed drainage projects to determine their feasibility agriculturally. Oreg.

To determine the feasibility of irrigation as compared with nonirrigation. (Sandpoint Substation) Idaho.

To determine the best methods of irrigating the soils. (Sandpoint Substation) Idaho.

Study of relations of soil water and crop in respect to irrigation and dry farming supplemented by irrigation. N.Mex.

Experiments in distribution of water and improvement of irrigation practices. Corrugation method- kind of soil, preparation, and head. Oreg.

General irrigation investigations in California, including office routine. Calif.

To find the most profitable crops to be grown under irrigation. (Sandpoint Substation). Idaho.

Irrigation practice at Greenville- beets, potatoes, oats, and alfalfa. Utah.

Irrigation: Especially for the growing of ensilage corn, potatoes, and new alfalfa. (North Platte Substation) Nebr.

Irrigation of vineyards. Calif.

Irrigation. (Cont.)

Alkali and plant food under irrigation and drainage conditions. N.Mex.

Irrigating waters and soils. A study of the irrigating waters and soils of the State. Ariz.

Water supplies and irrigation in Cochise County. Ariz.

Community irrigation movements in California. Calif.

Irrigation institutions. Utah.

Ground water development. An investigation of the valleys of the State and to map the same to show where artesian water is available for irrigation and for culinary purposes. The pressure of the water, the flow of the wells and the nature of the supply reservoir is studied for all the artesian well districts. Utah.

Ground water studies in the Mesilla Valley, New Mexico. To determine the cause of the rise of ground water, rate of rise, and approximate damage done. (In cooperation with the Office of Public Roads and Rural Engineering, U.S.D.A.) N.Mex.

Ground water studies in the Socorro Valley and Upper Rio Grande Valley, New Mexico. Preliminary investigation for the purpose of determining the source of seepage water, location of drains, size of drains, and assistance towards the organization of drainage districts. (In cooperation with the U.S. Department of Agriculture.) N.Mex.

Groundwater investigations. Principles of groundwater recharge, movement, and escape or use, especially escape through transpiration. Ariz.

Study of underground water levels. Seepage in the Gallatin Valley. Mont.

South Platte seepage investigation. Colo.

Pump irrigation. Cost and acreage that can be irrigated. Nebr.

Cost of pumping irrigation water. Laboratory test. Mont.

Pumping for irrigation and canal improvement. Investigations at Malone, Lund, Bloomington, and Cedar City. Utah.

An investigation of irrigation pumping machinery. Ariz.

Amount of water to apple. (Size of irrigation). Utah.

Duty of water. Mont.

Duty of water investigations. Studies as to duty of water for different soils and crops on the main irrigated sections of Oregon. Oreg.

Irrigation. (Cont.)

Duty of water for major crops with varying depths of application and applications at different intervals. (In cooperation with the Office of Western Irrigation Agriculture, U.S.D.A.). (Hermiston Branch Station) Oreg.

Amount of irrigation water for best results with wheat, oats, barley, peas, alfalfa, sunflowers, and other less important crops. (Burns Branch Station) Oreg.

Ashley Valley studies. (1) Gross duty of water studies; (2) net duty of water studies; (3) preparation of land ownership map showing location of canals and laterals. Utah.

Duty of water studies in southern Nevada. A study of the economical use upon special crops and on suitable soils of small heads of water from artesian wells or pumped from underground supplies; together with certain engineering data on the cost of pumping, on desirable cement constructions, and on methods and cost of well drilling. Location, Las Vegas Valley and Muddy Valley, a region adjacent to the proposed Boulder Canyon dam. (In cooperation with the Bureau of Public Roads, U.S.D.A.). Nev.

Evaporation and duty of water. Ariz.

Evaporation experiments. Colo.

Survey of composition of irrigation waters. Utah.

Measurement of water as applied to irrigation. Colo.

Measuring devices of irrigation- different kinds of weirs. Mont.

Irrigation investigations with field crops. Demonstration of measuring devices. Calif.

Venturi flume, its perfection and calibration for the measurement of water flowing in open channels. Colo.

Study of conditions affecting operation and accuracy of types of current meters for determining water velocity in open channels. Colo.

Materials of construction.

Effect of structure, time of cutting, and methods of seasoning of white cedar on the penetration of preservatives. Minn.

Timber preservation. Iowa.

Wood and roof preserving. Ala.

Roofing materials. Iowa.

Materials of construction. (Cont.)

Comparison of fence posts. Minn.

Investigation of the relative durability of fence post timbers. Ohio.

Preservative treatment of fence posts. Minn.

Preservative treatments of home-grown posts. (Northwest Experiment Farm) Minn.

Fence post treatment. With various chemicals, and charring. Mont.

Periods required to secure penetration of creosote oil in fence posts of common species of wood when treated by the hot-bath and cold-bath method. N.Y. Cornell.

Relative durability of creosoted fence posts treated by (1) brushing (2) dipping (3) the open-tank method of creosoting, and set in an experimental line in one of the fences bounding a university woodlot. N.Y. Cornell.

Concrete panel fence- an investigation of fence posts. Iowa.

Farm fence corrosion. Iowa.

Studies on fungi injurious to paint. To determine the species of fungi growing on painted surfaces, the environmental facts, the injurious effects, the relationship of fungi to paints of different composition and preventative measures. N.J.

Durability of concrete tile. Wis.

Investigations of low cost methods and manufacture of concrete pipe for use in farm drainage and irrigation. Idaho.

Coefficient of heat transmission in commercial wall boards. Colo.

Screen wire durability tests. (In cooperation with the Bureau of Entomology, U.S.D.A.). Wyo.

Cellular concrete construction for farm structures. Iowa.

Road materials of Colorado. Colo.

Miscellaneous.

Terracing. To determine the effect of grade and its relation to soil types. Ala.

Destructive distillation. The utilization of pine stumps and other waste material available in the clearing of cut-over land. Ala.

The harvesting and storage of ice. Iowa.

RURAL ECONOMICS

Cost of production and accounting.

Cost of production studies. Iowa, Oreg., Wash.

Farm cost accounting. Mo.

Farm cost survey. Wis.

Cost of producing farm products. Nebr., N.J.

Farm organization and cost of production. Statistical route studies. Kans.

Cost of producing farm products under farm conditions. Mo.

Cost studies in farm management. Vt.

Prices of farm products. N.Y. Cornell.

Investigation of farm organization, including cost of production studies in northern Idaho. Idaho.

Investigation of farm organization including cost of production studies, in irrigated sections of southern Idaho. Idaho.

Cost accounting investigations on Minnesota farms. (In cooperation with the U.S. Department of Agriculture). Minn.

Cost accounting investigations on Montana farms. Mont.

Cost accounts on some New York farms. N.Y. Cornell.

To determine the cost of certain crops from the standpoint of man and horse labor expended. (Caldwell Substation) Idaho.

Investigations into the financial side of farming as applied to the production of fruit, field, cereal and other crops of a similar nature. Calif.

Price and production data (potatoes, apples, hay). N.Y. Cornell.

The cost of producing crops grown for canning factories in western New York. N.Y. Cornell.

A study of labor requirements and production costs of farm crops and live stock in representative areas in Kentucky. Ky.

Cost of potato production. N.J.

Cost of producing wheat on dry farms of Columbia Basin. (In cooperation with the U.S. Department of Agriculture.) Oreg.

Cost of production and accounting. (Cont.)

Cost of producing fruits. Mim.

A study of cost accounting for citrus orchards with a view to determining as far as possible, the actual value of cultural practices. Calif.

Cost accounting in citrus groves. To find the cost of producing citrus fruits in Porto Rico. P.R.

Cost of tomato production. (In cooperation with the U.S. Department of Agriculture) N.J.

Cost of production of beef cattle. Ark.

Cost of maintaining a breeding herd of beef cattle in barn and on pasture. Miss.

Cost of fattening cattle and the relation of the enterprise to the farm business. (In cooperation with the U.S. Department of Agriculture) Nebr.

The cost of producing hogs for market (200 to 250 lbs. live weight). La.

The influence of different systems of management upon the cost of producing pork. Mo.

To learn cost including feed and labor, to raise pigs to weaning time or ten weeks old. (Raleigh, Statesville, and Kingsboro) N.C.

The cost of producing grazing crops for hogs. La.

Cost of fitting show barrows. Oreg.

To determine the cost of production of mature pullets for egg production. Mont.

Cost of production of dairy stock. Ark.

Cost of raising dairy calves. Miss.

Cost of growing dairy heifers. Iowa.

Cost of production of milk and butter fat. Ark.

Cost of milk from forced y. averaged dairy condition cows. To determine the cost of getting cows on the advanced register of their respective breeds. Md.

Records of production, cost of feeding and cost of milk production in tests of advanced registry of dairy cows. To secure records of production of registered dairy cows in Oklahoma; to secure feed records and methods of feeding dairy cows when under official test; to determine the cost of feeding test cows in Oklahoma. To determine cost of production of milk in tests of advanced registry. the advantages of advanced registry to owners or breeders of dairy cows. Okla.

Cost of production and accounting. (Cont.)

Record of the station herd: To ascertain the food cost of milk production, the cost of butter fat and the dry and digestible matter required to produce a definite amount of milk and butter fat. Mass.

Cost accounting, to determine the economic factors underlying successful dairying and to secure accurate data on the cost of milk production. Ill.

A study of the cost of producing milk in Idaho. (Caldwell and Sandpoint Substations) Idaho.

Procuring data relative to the cost of producing market milk. Mich.

Cost of milk production in Nebraska. (In cooperation with the U.S. Dairy Division) Nebr.

Cost accounting on Wisconsin farms. The cost of milk production. Wis.

A study of costs of operation in the creamery. Conn. Storrs.

Cost of pasteurization. Iowa.

Cost of farm power. N.J.

The cost of horse power, including feed, shoeing, harness depreciation and repair, bedding and labor for feeding and care. Oreg.

Farm labor.

Utilization of labor on the farm. A detailed study of the efficiency of growing corn on fields of various sizes. Mo.

Distribution of farm labor. Mo.

Labor requirements for various crops. Ark.

Wages and seasons of employment of farm laborers in Minnesota as determined (1) by the sample data methods and (2) by the estimate method of investigation. Minn.

Continuation survey of labor income. To study agricultural changes and variations occurring during a period of 5 years. W.Va.

Farm organization and management.

Farm organization. Utah, Wash.

Farm organization studies. Iowa, Miss.

Farm organization and management. (Cont.)

Applied farm organization. Plans prepared and installed for 40 farms. Oreg.

Farm organization. Records on about 500 farms. Oreg.

Farm organization and cost of production. Statistical route studies. Kans.

General plans of farm organization and operation in different sections of the State. Mo.

Investigation of farm organization, including cost of production studies in northern Idaho. Idaho.

Investigation of farm organization including cost of production studies, in irrigated sections of southern Idaho. Idaho.

Farm organization studies in the Gallatin Valley. Mont.

Farm management surveys. N.Y. Cornell.

Miscellaneous farm management studies. Utah.

To determine the most effective and economic size, type, and organization of farms in different parts of North Dakota. Also including farm accounting and crop estimating on the enterprises of wheat and potatoes. N.Dak.

A study of farm management in Tennessee. To determine the most profitable factors for profitable farming in various portions of the State. Tenn.

Farm management. To place the unused portion of the farm in condition to produce crops for feed or sale. (Caldwell Substation) Idaho.

To work out methods of studying regional farm management problems and discover the fundamental principles and their application to agriculture. Okla.

Study of farm management, farm accounting, and farm practices on farms practicing general farming. Mich.

Study of farm management, farm accounting and farm practices on farms where their major business is feeding beef cattle and sheep. Mich.

A study of farm management, farm accounting, and farm practices, on dairy farms in Wayne and Monroe Counties. Mich.

Study of farm management, farm accounting, and farm practices on farms where their major business is potato farming. Mich.

Farm management investigations in Hancock and Franklin Counties. Ill.

Farm organization and management. (Cont.)

Planning the Iowa farmstead. The arrangement of the buildings for economy of space and convenience, the grouping of certain buildings because of their common or similar use, and the arrangement of trees, shrubs, vines, and flowers to afford comfort and attractiveness to the farm home. Iowa.

An analysis and interpretation of Tennessee farm census data. To supplement and compare with data secured by other projects; to arrive at correct understanding of conditions existing in various sections of the State; and to make such data available for general use. Tenn.

Study of Indian agriculture. Agricultural practices that have made the native Indian farmers successful under conditions that usually mean failure for white men. Ariz.

An agricultural survey. Brooke, Preston, Upshur, Greenbrier, and Monroe Counties. (1) To obtain a knowledge of the farm management practice followed in a typical blue grass area where agriculture is the leading industry: (2) to determine the important factors which influence the profitableness of farming in this region; (3) to suggest ways of improving the organization and management of the less successful farms of the region, and (4) to compare the relative merits of a one-year survey with one taken two consecutive years. W.Va.

Operation of Van Meter farm. Ky.

Record of farm operations.- College farm. Penn.

Record of farm operations- Mitchell farms. Penn.

Notes on the management of the Thompson farm. Penn.

Types of farming. Utah.

A test of grain v. live stock farming. Ohio.

A comparison of a live stock system with a grain system of farming. S.Dak.

Economic studies of dairy farming. N.Y. Cornell.

Maintenance and management of a small herd of holsteins and a few Duroc hogs, in connection with an agronomy farm. (Pickinson Substation) N.Dak.

Farmers' cooperative organizations:

Factors involved in the success or failure of cooperative farmers' stores. N.Y. Cornell.

Business organization and management of cooperative produce marketing associations. Minn.

Farmers' cooperative organizations:

A study of farmers' organizations in Indiana. To find out the scope and extent of organizations among farmers, methods of doing business, their profitability, and their strong and weak points. Ind.

Investigations of cooperative marketing and purchasing among farmers in Kentucky. Ky.

The formation and activities of farmers' and ranchmen's organizations and mutual associations. Tex.

Economic investigations of the grain trade of Iowa. Farmers' elevator survey. Iowa.

Cooperative live stock shipping in Iowa in 1920. Iowa.

Cooperative seed production and distribution. Minn.

A determination of the efficiency obtained in the operation of Iowa cooperative creameries. Iowa.

The collection and analysis of statistics of cooperative organizations. Minn.

Land settlement.

Methods employed by private agencies in land settlement. (In cooperation with the U.S. Department of Agriculture) Minn.

Study of the progress of settlers in cut-over districts of Wisconsin. (In cooperation with the U.S. Department of Agriculture) Wis.

Land tenure.

Farm tenancy. Iowa.

Land tenure. To determine costs, investments, labor income, social phases, etc. (In cooperation with the U.S. Department of Agriculture). Nebr.

A study of farm ownership. Mass.

Helping landless men own farms or a comparison of private enterprise and public aid and direction in the creation of rural communities. Calif.

Study of lease contracts in Arkansas, and the share between landlord and tenant. Ark.

Special aspects of farm tenancy in Iowa. (In cooperation with the Office of Farm Management, U.S.D.A.). Iowa.

Land tenure. (Cont.)

A study of the distribution of land ownership and the causes and significance of tenancy in the Blue Grass region of Kentucky. (In cooperation with the Office of Farm Management, U.S.D.A.). Ky.

Land tenure in Missouri. Mo.

A study of farm tenancy in Tennessee. To determine the economic and social effects of tenancy; the relationship of tenancy to farm ownership, and the steps taken by owners in arriving at ownership; measures for the improvement of tenant conditions. Tenn.

Study of farm leases in Wisconsin. Wis.

Land values.

A study of land values. (In cooperation with the Office of Farm Management, U.S.D.A.). Ky.

Methods of land valuation with reference to Minnesota. Minn.

The agricultural and market value of Missouri farm lands. Mo.

A study of land value in Tennessee. To determine the relation of various economic factors, as good roads, distance to market, periods of depression, etc. on land values; land turnover; prices of farm products in relation to land prices. Tenn.

Marketing.

Market business practice. (In cooperation with the Bureau of Markets, U.S.D.A.) Minn.

The survey of marketing practices. Colo.

Study of the retail distribution of food. Wis.

Local balance of trade in farm crops. Mass.

General price movements and trend of prices of butter, hogs, potatoes, and wheat. Minn.

Investigations of cooperative marketing and purchasing among farmers in Kentucky. Ky.

Business organization and management of cooperative produce marketing associations. Minn.

A study of factors affecting marketing of farm products in Arkansas. Ark.

Marketing. (Cont.)

Marketing of Wisconsin farm products. Studies of the marketing of cheese, butter, potatoes, milk, live stock, and canned peas completed. Investigations now being conducted on the marketing of wool and cherries. Wis.

Studies on marketing grain. Mont.

Studies of farm storage factors in the marketing of wheat. Kans.

Investigation of the marketing of blue grass and orchard grass seed. Ky.

Marketing Nebraska potatoes. Nebr.

Investigations relating to methods of marketing tobacco. Ky.

Methods and costs of distribution of tobacco, onions, and potatoes. Mass.

Marketing Utah fruits. Utah.

A comprehensive study of the cost of marketing live stock. Iowa.

The organization and management of Minnesota creameries, considered as local marketing agencies. (In cooperation with the Bureau of Markets, U.S.D.A.) Minn.

Some factors influencing the demand for retail cuts. N.Y. Cornell.

Rural credit.

To determine the methods and cost of farm credits as obtained by farmers through various agencies- country stores, implement dealers, fertilizer dealers, banks, etc. N.Y. Cornell.

A study of rural credits in North Carolina. N.C.

Study of farm credit in Wisconsin. Wis.

Rural sociology.

The movement of farm population. N.Y. Cornell.

The farmers' standard of living: To determine, by a survey of three or four hundred typical farm homes in Livingstone County, the general standard of living of farmers as related to their income. N.Y. Cornell.

The standard of living on the farm as a factor in cost of production. Mo.

Cost of family living on the Missouri farm. Mo.

Rural sociology. (Cont.)

Ranch economic and social problems. Tex.

Country life. Study of rural primary groups. (In cooperation with U.S. Department of Agriculture) Wis.

A study of towns and villages as social and economic service stations. (In cooperation with the U.S. Department of Agriculture). Wis.

Rural social survey of the Gillett Grove. Consolidated School District, Clay County. Iowa.

Rural social survey of Jackson township, Warren County. Iowa.

Rural social survey of the west half of Lincoln Township, or Congressional Township 76 N., R. 24, Warren County. Iowa.

Rural social survey of Lone Tree Township, Clay County. Iowa.

Rural social survey of Orange Township, Blackhawk County, Iowa. Iowa.

Rural social survey of the Hudson, Orange, and Jessup consolidated school districts, Black Hawk County. Iowa.

A study of rural social organization. To discover the existing status in New York of rural community organization, particularly with regard to the behavior of rural communities and the natural process of social organization which has gone on in some of the more progressive rural communities of the State, with a view to making inductions as to the forces and processes of rural community organization. N.Y. Cornell.

A study of the health problems of rural communities of Cortland County. N.Y. Cornell.

A study of the rural neighborhoods of Otsego County, to determine the number and location of rural neighborhoods in that county and their social significance. N.Y. Cornell.

A study of the social activities of the rural schools in Tompkins County, to determine their influence in the social life of their neighborhoods. N.Y. Cornell.

A survey of the rural churches of Tompkins County. N.Y. Cornell.

Activities of other States and the United States in promoting rural progress. Tex.

Rural school houses. Iowa.

Rural sociology. (Cont.)

Problems concerning rural school buildings. (1) A score card for one-teacher buildings; (2) a score card for combined elementary and secondary school buildings; (3) the status of rural school buildings in New York; (4) a program of improvements for rural school buildings in New York. N.Y. Cornell.

Inequalities of school support burdens. N.Y. Cornell.

To discover types of farming and farm enterprises in the Schoharie region, as a guide to content selection in a high school course in agriculture. N.Y. Cornell.

The availability of secondary education for rural communities. N.Y. Cornell.

The effect of local community differences on the rural elementary curriculum. N.Y. Cornell.

The adaptability of the junior high school to rural conditions. N.Y. Cornell.

The relation of achievements in New York State Regents examinations and achievements in high school and college. N.Y. Cornell.

Relation of the New York State course of study to the rural school situation. N.Y. Cornell.

The distribution of the high school principal's time in the small high school. N.Y. Cornell.

The relation of speed and accuracy in mental functions. N.Y. Cornell.

Rural economics, miscellaneous.

A study of retail costs of farm supplies and their relation to farm profits. Ark.

An agricultural survey, townships of Ithaca, Dryden, Danby, and Lansing (Tompkins County) and Livingston, Jefferson, and other counties. N.Y. Cornell.

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